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THE RELATION OF PATHOLOGY TO PRACTICE*

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With the swinging of the pendulum in the science of medicine has come the fashion of neglecting pathology, the pathology of the type called, in the olden days, morbid anatomy. This neglect is shown in many ways: in a diminution in the volume of published work; in the lessened number of necropsies performed, and in the smaller number of men who are actively interested in the subject. It may be that the great days of Rokitansky, of Virchow and of Cohnheim have passed never to return; but it is more likely that the next swing of the pendulum will bring with it a renewed interest in the study of the anatomic changes which accompany disease.

That, despite the recent progress in biochemistry and serology, there are still a few things to be learned in morbid anatomy has been shown by the recent rediscovery of the peculiar types of bronchopneumonia which have caused so heavy a mortality in those suffering from influenza, and by the large number of important studies on the lesions of toxic war chemicals.

Technical improvements in the methods of histology have lagged somewhat of late, except, perhaps, in neuro-anatomy, and it is not so easy to pick up a simple problem, or one promising considerable harvest with little labor, as it is in some of the newer subjects; but there is much yet to learn. Is the subject of nephritis, of cirrhosis, of myocarditis, of endarteritis, exhausted? Are not tumors still as baffling as they were a hundred years ago?

FAULTY MEDICAL INSTRUCTION

The lack of interest in pathology begins with the student. He is badly taught in many institutions. His course in anatomy and histology is usually ideal from a biologic aspect but ill adapted as a preliminary to the study of pathology. My own belief is that it would be better for the student of medicine if the occupants of the chairs of anatomy should be required to do research chiefly, and, except for special courses, should attend principally to graduate work. Most of the actual undergraduate teaching in anatomy might just as well be done by instructors, and all of the latter should be graduates in medicine and made to arrange some correlation in the subject-matter of their courses to the facts taught in the clinical branches. With the present admission requirements, the assumed cultural value of anatomy may well be forgotten.

Secondly, pathology is badly taught chiefly because of the lack of necropsies. This is due not to the pathologist himself, but to the physicians and the surgeons of the hospitals, who no longer urge that necropsies be obtained as a routine. This is the reason why most of the able pathologists in the United States have been forced to obtain a large portion of their training in Berlin or Vienna. Now that these schools are no longer available, more effort should be made to raise the standard of the teaching of gross pathology in this country. Where can be seen today such brilliant demonstrations as Virchow gave in Berlin, or Kolisko in Vienna?

A third trouble with the student is that after he leaves the regular course in pathology he falls into the hands of men instructing in the clinical branches who often know less pathology than he does, impossible as the fact may seem. If the attempt is made to correlate the physical signs and symptoms of disease with the pathologic changes which underlie such signs and symptoms, the student is apt to be confused by the contradictions between the matter taught in the laboratory and that in the wards. To attempt to determine which teacher is right requires too great an expenditure of cerebral energy on the part of the student, and the knot is usually cut by forgetting both sides. So, as he progresses toward his hospital years or his practice, the student gradually sheds the thin epidermis of pathologic anatomy he at one time possessed, and enters into practical life with a mind unburdened by pathology. In most hospitals today he will see only a fraction of the necropsies that his seniors did about twenty years ago; or if such examinations are fairly frequent, he has little time from his ward duties, and therefore does the practical work, which interests him more than labors in the field of what he considers pure theory.

IMPORTANCE AND NEGLECT OF NECROPSIES

The physician of today also neglects the postmortem room, except in teaching hospitals. How seldom do we see the house staff and medical attendants remain through a complete necropsy, or attempt to study the details of pulmonary, renal or cardiac lesions with a view to checking up physical signs or the stage of lesions.

He rarely obtains postmortems on his private patients, though the intelligent are often more willing

* Chairman's address, read before the Section on Pathology and Physiology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

to give consent than the family of the ignorant denizen of the hospital ward. Nor does he, as a rule, although there are, of course, exceptions, urge on his staff the importance of the thorough investigation postmortem as the only means of confirming opinions in doubtful cases. Only the pathologist realizes how many patients with hysteria have brain tumors; in how many heart cases there are no valvular lesions, but nephritis; and that 10 per cent. of all old persons die with unsuspected cancer. The result of this lack of interest is that the percentage of necropsies is steadily falling in many of our hospitals. If the Mayo Clinic and the General Memorial Hospital of New York succeed in obtaining a permit in over 90 per cent. of deaths, why does Bellevue Hospital obtain only 7 per cent. and many other institutions only from 20 to 30?

INADEQUACY OF FUNCTIONAL TESTS

There is little doubt that the reason so few necropsies are obtained is that the physician of today is more interested in functional tests than in morbid anatomy; and yet of what ultimate value to medicine is a dye excretion test, or a chlorid determination, or a blood urea or creatinin test unless the kidney lesions are also investigated? All these, perhaps more especially the blood sugar test, are of value in treatment and prognosis; but if they are ever to become a permanent part of our body of medical knowledge they must include some morphologic foundation.

It may be convenient and practical to classify nephritics into two groups: those who retain salt and those who do not; but such a method conceals an enormous amount of ignorance. The study of disease by the functional method is of enormous importance and has led to a great increase in our knowledge, but it should not attempt to stand alone and independent of all morphology.

An excellent example of the admirable results following a combined attack is the great advance that has been made in the past fifteen years in the correlation of anatomic findings with groups of clinical symptoms in the diseases of the nervous system. A very important part in this has been due to the discovery and wide use of new histologic methods and the Wassermann test; but the internist could well imitate the neurologists in their extremely laborious studies in the cellular pathology of the nervous system.

VALUE OF PATHOLOGY TO THE SURGEON

The surgeon, too, is not without a certain feeling that pathology is a somewhat dead if still annoying specialty. He is still displeased when told that he has excised only a portion of a tumor, or a secondary deposit and not the primary growth, that the spleen which he has just removed with the utmost skill contains nodules derived in all probability from a benign lump in the breast which some colleague had removed a year or so previous, and never submitted for microscopic examination. He still contributes to the joy of medical literature by such a choice morsel as this, culled from a recent surgical journal:

> A large tumor successfully removed from the pelvis was reported by the pathologist as resembling thyroid tissue, whereupon the thyroid was carefully examined and found to be cancerous. "Nevertheless," remarks the operator with delightful freedom from logic, "it is not wise to rely on microscopic examination of tumors; it is often misleading, and the physical examination of the mass at the time of operation is to be preferred."

So, too, the pathologist is blamed in a recent surgical article for not discovering the frequency of occurrence of perforating duodenal ulcer postmortem, while the surgeon often sees the lesion and saves the patient. The obvious retort, that perhaps the reason such cases do not often come to necropsy is that the patients fortunately do not die of the disease, is to deny the advantages of early operation. Even the physician is not blameless according to certain surgical minds, for he does not yet realize that "the place to learn diagnosis and treatment is at the elbow of the surgeon," and one may, under these circumstances, venture to look forward to a medical elysium in which the crude methods now employed will be abandoned and diagnosis made definite and therapeutics infinite in power by the simple procedure of exposing the offending organ, studying its pathology in situ, and prescribing with a certainty now impossible. Such a time will be anxiously awaited by all but the patient.

SUMMARY

Pathology is today too largely confined to medical schools and teaching hospitals. As it is the foundation of all medicine, the student should be inspired to carry on its study as a part of his practical life. The physician must know and use it to temper his diagnostic and therapeutic enthusiasms. While the diagnosis and treatment of the individual suffering from disease is the art of medicine, we must not become so busy as to neglect the science of medicine which concerns the future of the race.

The surgeon also needs pathologic training to enable him to make a certain diagnosis when some unexpected lesion is discovered during the course of an operation. He needs tumor pathology above everything else, for unless he knows it, the operative results on cancer cannot be improved on as they should be. A knowledge of pathology, in other words, is essential for correct diagnosis, prognosis and treatment.

1145 Amsterdam Avenue.

The Saliva in Pellagra.—M. X. Sullivan and K. K. Jones (*Public Health Rep.*, May 16, 1919) report that in this disease the condition of the mouth and particularly of the tongue is of considerable significance in establishing a correct diagnosis. The quantitative studies showed that salivation spoken of by the patients was often apparent rather than real and was seemingly due to some inhibition of swallowing combined with a peculiar, ropy change in the saliva which made its presence in the mouth more obvious. A tendency toward a greater quantity of solids in the saliva of pellagra patients was also observed. The diastatic power of the saliva of pellagra patients is at least as great as that of normal people. While the amount of mucus precipitated from saliva by acetic acid was greater for the saliva of the pellagra patients than for the controls, the increase is apparently unrelated to the severity of the symptoms. The sulphocyanate content of the saliva disclosed that this is much less marked than in the saliva of normal people. Since it is generally admitted that the sulphocyanate arises from the metabolism of protein and the detoxicating action of the system, whereby poisonous cyanids are converted into the relatively innocuous sulphocyanate, the investigators believe that in pellagra patients there is both a lessened protein intake and a detoxicating power feebler than normal. The reaction of the saliva in pellagra is somewhat more alkaline than is that of normal saliva.

SURGICAL TREATMENT IN THE BLEEDING TYPE OF GASTRIC AND DUODENAL ULCER *

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The surgical treatment of uncomplicated benign lesions of the stomach and duodenum has reached a high state of efficiency and standardization. The

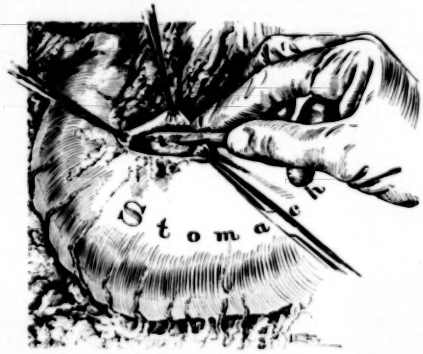

Fig. 1.—Shaving of thickened musculoperitoneal coats.

various complications, however, which may develop in direct connection with gastric and duodenal ulcer, such as acute and chronic perforation, obstruction, deformity, malignant degeneration, and hemorrhage, present added problems to the surgeon; one of the most important of these is hemorrhage.

Gastric hemorrhage has been the occasion of more confusion in diagnosis, uncertainty in therapeutic indications, and irrationality in treatment, both medical and surgical, than perhaps any other gastric condition. The number of cases seen in which an erroneous interpretation of symptoms has led to incorrect suggestion for treatment, resulting in failure to protect the patient against further hemorrhage, illustrates the necessity of persistent study of the subject. This paper is concerned chiefly with two groups of cases, first, those in which operation has proved unsatisfactory because of error in attributing the bleeding to a lesion which is not present, and second, those in which the surgical procedure carried out has failed to obviate further hemorrhages, even though a correct diagnosis has been made.

A study of these groups disclosed certain facts which indicated that it should be possible to decrease the incidence of such failures; in the first group, by more accurate preoperative diagnosis, with better interpretation of operative findings; in the second group, by the addition of certain specific measures to the standard surgical procedures applicable to benign lesions of stomach and duodenum.

The first group of cases, those in which no intrinsic lesion is present, not only is large but also includes a variety of conditions which may be associated with hematemesis. Some of these conditions do not fall within the field of the surgeon, but there are other conditions which can be eradicated by surgical means, and this group is so important that I shall review briefly a representative example, a case illustrating the diagnostic error of presupposing gastric ulcer because of hematemesis, and of following the error by carrying out a routine operation on the stomach designed to cure this imaginary ulcer:

A man (Case 132411), aged 55, came to the clinic, June 5, 1915, because of recurring hematemesis. In some of the attacks the patient had been almost exsanguinated. The hemorrhages had begun in January, 1914, without a previous history suggestive of a causative factor; in July, 1914, a gastro-enterostomy was performed at his home; he was told that an ulcer was found at the pylorus. Some weeks after the operation a hemorrhage occurred similar to those he had had before the operation, and between that time and his registration in the clinic he had had several distinct gastric hemorrhages, the last severe one occurring in February, 1915. There were no typical symptoms nor physical or laboratory findings to establish a diagnosis, but the patient's condition and history were such as to make further exploration imperative.

In July, 1915, I explored and found a patent and well functioning gastro-enterostomy. Palpation revealed no induration in stomach or duodenum, and no visible signs of ulcer, nor did careful inspection through a large opening in the anterior wall of the stomach show any evidence of an active or healed ulcer at the anastomosis or in the stomach or duodenum. Exploration of the biliary tract disclosed a slight thickening of the walls of the gallbladder through which the yellowish spots on the surface of the mucous membrane which indicate a cholecystitis of the "strawberry" type could clearly be seen. The pancreas, too, showed very distinct changes, being considerably enlarged and nodular. This fact, the gall-

Fig. 2.—Probe introduced through the site of chronic perforation.

bladder findings, and past experience in similar cases, seemed a clue to the cause of the hematemesis. There were no recognizable changes in the liver, and general exploration was negative. A cholecystectomy was performed because in our experience with cholecystitis, with or without stones, associated with pancreatitis, and without jaundice, this has seemed

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

the operation of choice. A well defined chronic catarrhal cholecystitis of the most typical "strawberry" type was found. The patient made an uneventful recovery and has had no hemorrhage since. Similar cases in which the appendix, spleen or liver is the basic focus are not infrequently seen.

The first question, then, to demand a decision in cases of gastric or gastro-intestinal hemorrhage concerns the cause of the hemorrhage. Fortunately, in the majority of cases careful history taking, associated with expert interpretation of roentgen-ray findings, will usually determine whether or not an ulcer is present. If the evidence does not support a diagnosis of ulcer, but indicates disease in some organ in the abdomen, such as the gallbladder, pancreas or appendix, it must not be forgotten that gastric hemorrhage may be due to such extrinsic causes. The spleen and liver particularly should be kept in mind as causative factors, for it has been proved that either the spleen or the liver or both can be the cause of most serious gastro-intestinal bleeding without showing any changes that are recognizable in our present state of knowledge. The group of cases in which an undoubted gastric hemorrhage has occurred but in which the symptoms or physical findings are insufficient to lead to a positive diagnosis either of ulcer or extrinsic trouble requires, therefore, the most serious consideration as to whether operation should be undertaken. Fortunately, symptoms are usually associated with such hematemesis, and, though obscure, justify an exploration, and although doubt may exist as to any satisfactory explanation being found to account for the hematemesis, frequently pathologic conditions extrinsic to the stomach are found which, when eradicated, secure permanent protection against further hemorrhage. In hematemesis unassociated with abdominal symptoms or findings, and in which it is not possible to establish a diagnosis, operative interference should, as a rule, be advised against.

Fig. 3.—Peritoneal surface of ulcer prepared for application of cautery.

The group of cases, however, to which I particularly refer is that group in which recurring gastric hemorrhage has been caused by a chronic gastric or duodenal ulcer. Our records show that 25 per cent. of gastric ulcers and 20 per cent. of duodenal ulcers have been complicated by one or more gross hemorrhages. In the earlier days of gastric surgery the operation of gastro-enterostomy proved to be so efficient in a large majority of benign lesions of the stomach and duodenum associated with hemorrhage that the realization came rather slowly that at least some of the failures to obtain a complete cure, including protection against further hemorrhage, could be attributed to the fact that direct attack on the ulcer was not added to the indirect therapeutic measure of gastro-enterostomy. The recognition of the danger of malignant degeneration in gastric ulcer gave the first impetus to the practice of combining gastro-enterostomy with the radical excision or destruction of such ulcers. The advisability of such a principle is now well established.

It has, therefore, become quite evident that in the surgical treatment of a gastric or duodenal ulcer which has been the cause of hemorrhages, some direct attack on the ulcer is most important. The necessity for this has become apparent to us because of the fact that a number of our own patients with duodenal or gastric ulcer had failed to secure, by gastro-enterostomy alone, protection against further bleeding. Apparently rare as such failures were, they nevertheless formed in the aggregate a group which called for an investigation as to the possibilities of reducing the number of such recurrences. A concise compilation of such cases illustrating the incidence of hemorrhage as a late postoperative complication may be found in the accompanying tables. The cases chosen for study were those in which operation was performed in the Mayo Clinic during the twelve year period between January, 1906, and January, 1918.

A study of Table 1, which represents the percentage of hemorrhages following operations for duodenal ulcer, shows that 12.7 per cent. of the patients who had hemorrhages before operation had hemorrhages after operation, and in two instances the hemorrhages were sufficient to cause death. Twenty patients (0.9 per cent.) in the group who had not reported hemorrhages before operation had hemorrhages following operation. Eighty-three patients, 2.8 per cent. of the total number operated on, had hemorrhages following operation.

Fifteen patients (8 per cent.) with gastric ulcer report hemorrhage after operation who had had hemorrhage before, and two patients (0.3 per cent.) had hemorrhage who had not had hemorrhage before

operation. Seventeen patients, therefore, suffered from hemorrhage after operation, a percentage of 1+ of the total number of gastric ulcers operated on.

A comparison of the figures in Tables 1 and 2 shows that the incidence of hemorrhage in duodenal ulcer following operation is definitely higher than the incidence in gastric ulcer, notwithstanding the fact that

TABLE 1.—HEMATEMESIS IN CASES OF DUODENAL ULCER IN WHICH OPERATION WAS DONE

Jan. 1, 1906, to Jan. 1, 1918

	Cases, No.	Per Cent.	Operative Mortality from All Causes Per Cent.
Total number	2,875	....	1.6
Patients having hemorrhage before operation	583	20+	1+
Patients having hemorrhage before operation heard from	494	86.0	...
Patients reporting hemorrhage after operation	63	12.7*	...
Patients reporting hemorrhage after operation but none before	20	0.9	...

* Or 2 per cent. of the total number.

there is a greater tendency for gastric ulcer than for duodenal ulcer to be complicated by bleeding. This important fact, namely, the difference in operative

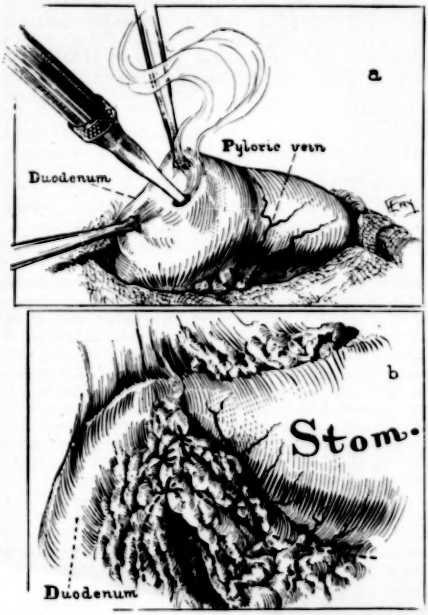

Fig. 4.—*a*, cautery puncture over a small duodenal ulcer; *b*, completed operation; omentum implanted over site of closure.

results in gastric and duodenal ulcers, may be largely attributed to essential differences in operative technic.

The radical treatment of gastric ulcer was originally due to the recognition of the fact that an ulcer on the gastric side of the pylorous holds unquestionable possibilities of becoming malignant. Excision of such ulcers either by knife or cautery was, therefore, performed whenever possible by surgeons whose experience was sufficient to make them appreciate the necessity of this treatment. Such radical measures neces-

Fig. 5.—Ulcer of the duodenum apparently healed but the cause of recurring hemorrhage. Silk suture which had been placed at a previous operation.

sarily carry a higher operative mortality, but the avoidance of such mortality by simpler operative measures means a marked increase in ultimate morbidity and mortality.

In duodenal ulcers, however, radical treatment was not necessary because of this possibility of malignant degeneration or of disabling complications, and the indirect method of treatment by gastro-enterostomy

TABLE 2.—HEMATEMESIS IN CASES OF ULCER OF THE STOMACH IN WHICH OPERATION WAS DONE

	Cases, No.	Per Cent.	Operative Mortality from All Causes Per Cent.
Total number	863	....	3+
Patients having hemorrhage before operation	222	25.8	4.8
Patients having hemorrhage before operation heard from	180	81+	...
Patients reporting hemorrhage after operation	15	8.0*	...
Patients reporting hemorrhage after operation but none before	2	0.3	...

* Or 1+ per cent. of the total number.

proved to be sufficient in a high percentage of cases to relieve the patient of the symptoms of which he complained. The more frequent occurrence of hemorrhage after operation for duodenal ulcer than for gastric ulcer is apparently due to this difference in operative procedure, and the following facts bear out such a statement: In not one of the eighty-three cases in which hemorrhages occurred after operation for duodenal ulcer was the combined operation of excision of the ulcer with gastro-enterostomy carried out, and with the exception of eight cases in which various types of pyloroplasties were performed, in every case a gastro-enterostomy alone was performed. This fact

is significant particularly when one compares the results of the established methods of excision and gastro-enterostomy in gastric ulcer in which, although the tendency to hemorrhage had been greater, a much smaller percentage of bleeding followed operation. The combined procedure of excision and gastro-enterostomy was carried out in only one of the seventeen cases of gastric ulcers in which there was bleeding after operation. These facts can only mean that the methods of direct attack combined with gastro-enterostomy which are used in the treatment of gastric ulcer are a source of protection to the patient against further hemorrhage.

Another point brought out in the study of these cases is that in the majority of those patients who had bleeding after operation, the operation relieved all other symptoms, so that the recurrence of the complication of hemorrhage was the only feature which marred an otherwise perfect result. This fact is difficult to explain. It raises the question, for example, whether the hemorrhage actually comes from the site of the symptomless ulcer. The fact that the mucous membrane can bleed when no visible lesion is present, and that recurring hemorrhages from the stomach may take place without any demonstrable changes either in the stomach or in any other organ, throws some doubt on the assumption that all such recurrences have their origin at the site of the ulcer.

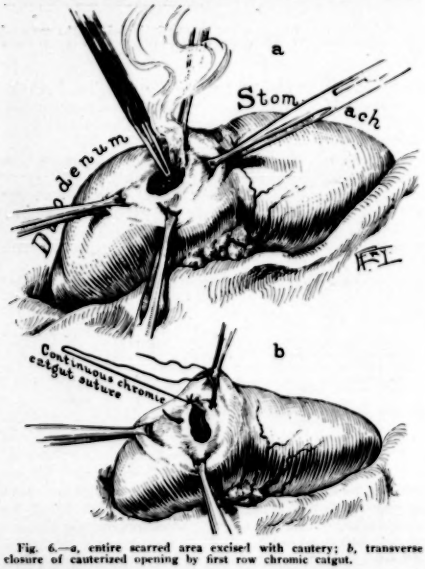

Fig. 6.—a, entire scarred area excised with cautery; b, transverse closure of cauterized opening by first row chromic catgut.

But the fact remains that in the majority of cases in which we have reoperated, radical treatment of the ulcer area obviated further hemorrhages.

Our gradual realization of these facts, particularly when we found that 12 per cent. of duodenal and 8 per cent. of gastric ulcers which had been the source of bleeding before operation bled after operation, led to a thorough search for some means of lowering the incidence of these failures. From a study of our own cases it was perfectly evident that gastro-enterostomy alone, as I have pointed out, is insufficient protection against further hemorrhages, and that excision

Fig. 7.—a, cauterized opening closed by row of catgut; b, closure reinforced by a returning second continuous suture.

combined with gastro-enterostomy has given almost total protection. The problem resolves itself, therefore, into one which concerns the safest method of accomplishing a radical excision in the majority of cases. Various suggestions have been made and carried out at different times. Ligation of the vessels in the circumference of the ulcer, a procedure highly recommended by Woolsey,[1] devitalization by constricting suture, pyloric exclusion of von Eiselsberg,[2] and excision have all been tried. Unfortunately, under certain circumstances knife excision is a formidable technical procedure and one at which even the experienced surgeon will wisely hesitate. In a search for some method which will be at the same time radical, safe and applicable in the largest number of cases, we have adopted the actual cautery as meeting these requirements.

TECHNIC

The technic for the use of the cautery in the bleeding type of gastric ulcer differs in no particular from that used in the ulcer which has not been associated with bleeding; it may be briefly described by stating

1. Woolsey, G.: The Surgical Aspects of Gastric Hemorrhage, New York M. J. **107**: 395-398 (March 2) 1918.
2. Von Eiselsberg, F. A.: The Choice of the Method of Operation in the Treatment of Gastric and Duodenal Ulcer, With a Review of My Experience Accumulated in the Past Ten Years, Surg., Gynec. & Obst. **19**: 555-563 (Nov.) 1914.

its important features.[3] Probably the most important point in the technic is the exposure of the peritoneal side of the ulcer, and, in a great many instances, as we have recently demonstrated, a close shaving of the gastrohepatic omentum (Fig. 1) with a portion of the thickened peritoneal coat will disclose the minute opening which marks the site of chronic perforation. In many cases a probe may be introduced (Fig. 2) through this tract and used as a guide in introducing the cautery (Fig. 3). This observation seems important because it shows the frequency with which this perforation can be demonstrated, and that chronic perforation occurs in practically all chronic ulcers. Knowing from palpation the size of the crater of the ulcer, the cauterizing is maintained until an opening as large as the crater is made. In this way, as I have pointed out in previous articles,[4] any malignant cells within an area of 2 cm. of the cautery point are killed, and the danger of cancer-cell grafting, which is always present in knife excision, is avoided. The opening is subsequently closed with fine chromic catgut, and with reinforcing sutures of silk.

Cauterization is simpler in duodenal than in gastric ulcers, as the duodenal ulcer is usually in direct view and is rarely protected by any surrounding tissue; moreover, the crater of the ulcer is often very small, so that only puncture of the ulcer is required (Fig. 4 *a* and *b*). The cautery in duodenal ulcer was first employed in ulcers of the bleeding type, but lately it has seemed advisable to destroy, in this manner, practically all duodenal ulcers which are readily accessible (Figs. 5, 6 *a* and *b*, and 7).

SUMMARY

The points I desire to emphasize are:

1. Hemorrhage following operations for both gastric and duodenal ulcer is of sufficient frequency (2 per cent. in duodenal ulcer and 1+ per cent. in gastric ulcer) to warrant a revision of operative methods in such cases.

2. Gastro-enterostomy or pyloroplasty alone does not always protect against further hemorrhages, while excision of the ulcer and gastro-enterostomy gives almost total protection.

3. Excision by cautery combined with gastro-enterostomy is the most satisfactory method in the majority of cases of minimizing the possibility of recurrence of hemorrhage in all ulcers which have been associated with hemorrhages, and similar treatment seems advisable in both gastric and duodenal ulcers which have not exhibited such a complication.

3. Balfour, D. C.: Cautery Excision of Gastric Ulcer, Ann. Surg. **67**: 725-731 (June) 1918.
4. Balfour, D. C.: Ann. Surg. **67**: 725-731 (June) 1918; Treatment by Cautery of Gastric Ulcer, Surg., Gynec. & Obst. **19**: 528-530 (Oct.) 1914.

The Venereal Toll.—During the month of September, 1916, from nearly 42,000 Canadian troops in Great Britain there were admitted to hospital suffering from venereal disease, 960 men, practically a battalion; during the month of September, 1918, from among 110,000 Canadians in Great Britain there were 750 similar admissions. In two years the venereal incidence had been reduced more than 66 per cent. It stands now at less than the third of what it was two years ago. Had they continued at the same rate, the admissions during the month of September, 1918, would have been, not 750, but over 2,500; not seven and a half companies, but two battalions and a half out of action.—Adami, *Canad. M. A. J.*

A NEW OPERATION FOR DUODENAL AND GASTRIC ULCER*

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There is no excuse for a new operation if the old ones are satisfactory. The results of a surgical operation are the test of its efficiency, and they should be viewed from two standpoints: First, and most important, is the clinical result and, secondly, the restoration of tissues or organs to their normal physiologic condition. It seems probable that no important physiologic function of the body can be abolished or seriously altered without creating a disturbance of health in at least some of the individuals thus affected.

The usual surgical treatment for duodenal or gastric ulcers is gastro-enterostomy, with or without excision of the ulcer. When done for gastric ulcer, the ulcer is either excised or cauterized with the actual cautery (Balfour). When the gastro-enterostomy is for a

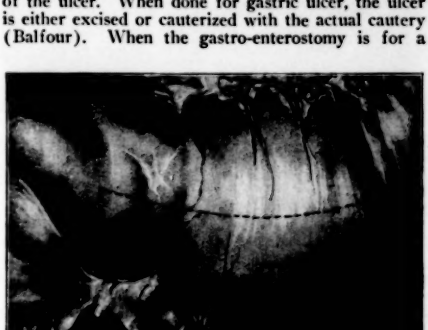

Fig. 1.—The incision is made from a point on the anterior surface of the duodenum not farther from the pylorus than 1 inch, extending into the stomach, midway between the greater and lesser curvatures, not less than two inches. These points are fixed with forceps or sutures before the gauze is placed.

duodenal ulcer, the ulcer is usually not excised, but is often sutured over or folded in. Another type of operation employed is the pyloroplasty of Finney.

GASTRO-ENTEROSTOMY

The clinical results from gastro-enterostomy when performed for duodenal or for gastric ulcer are by no means perfect. D. C. Balfour[1] says:

> Although evidence is conclusive that surgery gives permanent relief in a higher percentage of cases and with less associated risk than any other therapeutic measure, it is also true that the surgical treatment of gastric ulcer may be made still more efficient.

He reports end-results of 285 cases of gastric ulcer in which operation was performed at the Mayo Clinic from Jan. 1, 1906, to July 1, 1915, with 159 (55.7 per

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.
1. Balfour, D. C.: Results of Surgical Treatment of Gastric Ulcer, Surg., Gynec. & Obst. **24**: 731 (June) 1917.

cent.) cures. The rest are classified as "greatly improved," "improved," and "unimproved."

Frank Smithies of Chicago, who was formerly gastro-enterologist at the Mayo Clinic and is now at the Augustana Hospital of Chicago, has long been associated as a medical man with large surgical clinics in which gastro-enterostomy is the chief surgical method of dealing with gastric or duodenal ulcer. He[2] reports observations on 273 patients on whom

Fig. 2.—The opening in the stomach has been made; first, by cutting down to the gastric mucosa and clamping as many vessels as possible before opening the mucosa; then the incision is extended into the duodenum for not more than one inch. The ulcer is excised from the mucous surface.

gastro-enterostomy had been done for the relief of dyspepsia. His paper was intended as a study of the function of the stomach after gastro-enterostomy, but the side-lights on the efficiency of this operation as a therapeutic measure are illuminating.

Smithies' 273 cases represent 226 patients operated on for gastric or pyloric ulcer, twelve for gastric cancer, and thirty-five for duodenal ulcer not involving the pylorus. Of this entire number, he reports only fifty-seven, or 20.9 per cent., clinically complaint free. Twenty-eight[3] (80 per cent.) of the thirty-five duodenal ulcer patients had pain or distress, and many of this number had other symptoms, such as gas, nausea, vomiting, or eructation. However, as the total number of cases is made up of (1) patients requested to return for examination regardless of their condition and (2) patients who came voluntarily because they were having trouble, the percentage of cures represented is too low. In reply to a request, Dr. Smithies has written me under date of April 10, 1919, that about 65 per cent. of the 273 patients (177) returned for examination at his request. Percentage based on this number (177) would be unduly favorable because these cases were selected apparently arbitrarily from a large number of stomach cases in which operation had been performed and which had been observed by him (2,360) and do not include those patients who came voluntarily because of trouble. Making all allowances for this latter group, which constitutes about one third of the total number, we still have a percentage of complaint-free patients that is very low (much below 50 per cent.) both for gastric and for duodenal ulcer patients on whom gastro-enterostomy had been done.[4]

2. Smithies, F.: Gastric Function Following Gastro-Enterostomy, Surg., Gynec. & Obst. **26**: 275 (March) 1918.
3. Smithies, F.: Gastric Function Following Gastro-Enterostomy, Surg., Gynec. & Obst. **26**: 277 (March) 1918, Table IV.
4. Smithies, F.: Gastric Function Following Gastro-Enterostomy, Surg., Gynec. & Obst. **26**: 277 (March) 1918, Tables III and IV.

These results as reported by Balfour and by Smithies certainly cannot be considered satisfactory so far as curing the patients is concerned.

It is obvious that gastro-enterostomy for duodenal or gastric ulcer does not restore the stomach to its normal physiologic condition. The clinical cures following this operation have been variously explained. Some have said that it is a gravity drainage operation, and yet in draining other hollow muscular viscera we do not open at the lowest point. The gallbladder and the urinary bladder are drained from the part opposite the most dependent portion, and an enterostomy is done on the loop of intestine nearest the obstruction and not on the loop deepest in the pelvis; for we know that normal contraction or peristalsis will keep the bladder or bowel empty if an opening is made. From time immemorial the current of pressure and the peristaltic rhythm of the stomach have been focused on the pylorus, and not on the so-called lowest point in the stomach. Besides, there is no one portion of a mobile muscular organ, such as the stomach, that is always at the lowest point. This and other disadvantages of gastro-enterostomy have been admirably demonstrated by Cannon and Blake.[5] It has been affirmed that gastro-enterostomy cures by short-circuiting the course of food and so resting the ulcer; and also that it cures by lessening the acidity of the gastric juice. The roentgen ray has shown that unless the pylorus is closed some food usually continues to go by this route and pyloric closure is not often permanent unless a resection is done.

Lennander's[6] statement that the stomach is without sensory nerve supply for pain has been apparently disproved. Other investigations[7] seem to have shown that the stomach has a limited supply of nerves that conduct pain. These nerves terminate in the muscular coat of the stomach, and do not reach the mucosa. It has been demonstrated that the pains that come on with

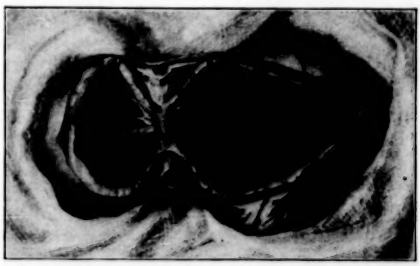

Fig. 3.—If there is marked stenosis, pockets will result on the duodenal side. These are obliterated by incisions of the mucosa and of the constricting bands. To avoid hemorrhage these incisions should be short and not too deep.

such clocklike regularity after meals in duodenal or gastric ulcer are not caused by acid erosion of the ulcer by the hyperacid gastric juice, as was formerly believed, but are due to the pressure of peristalsis on

5. Cannon and Blake: Gastro-Enterostomy and Pyloroplasty, Ann. Surg. **41**: 686-711 (May) 1905.
6. Lennander, K. G.: Abdominal Pain, Especially Pain in Connection with Ileus, J. A. M. A. **49**: 836 (Sept. 7) 1907.
7. Kast, L., and Meltzer, S. J.: Sensibility of Abdominal Organs and the Influence on It of Injections of Cocain, Med. Rec. **70**: 1017 (Dec.) 1906. Ritter, C.: Sensibilität der Bauchorgane, Zentralbl. f. Chir. **35**: 609 (May 16) 1908.

these gastric nerves, which are made unusually sensitive by the inflammation of the ulcer.[8] Consequently, they register impulses of pain from the pressure of peristalsis that in a normal physiologic condition they would not register. The character of the gastric juice has nothing to do with the pain except so far as it excites peristalsis. Gastro-enterostomy probably relieves the pain from a duodenal or gastric ulcer by facilitating the emptying of the stomach, thus lessening

Fig. 4.—The incisions in the mucosa dividing the bands are sewed up transversely, and, if necessary, along the upper and lower border of the stenosis the mucosa of the duodenum is sutured to the mucosa of the stomach. It is essential to have a complete mucous membrane covering for the posterior wall.

peristalsis. This is largely the treatment of a symptom and not an effort to remove a pathologic condition and restore tissues to their physiologic state.

The dangers of vicious circle, jejunal ulcer, volvulus, or hernia into the lesser peritoneal cavity, though not great, yet exist when a gastro-enterostomy is done and are not present in operations on the pylorus.

FINNEY'S PYLOROPLASTY

When pyloroplasty is done, the method usually employed is that of Finney. Finney's operation, as is well known, consists of a horseshoe-shaped incision with its center at the pylorus, one limb extending down on the mobilized duodenum, and the other on the stomach near the greater curvature. These limbs of the incision are united by suturing the posterior margin of the wound in the duodenum to the posterior margin of the wound in the stomach, and the anterior margin of the wound in the duodenum to the anterior margin of the wound in the stomach. Many of the objections that apply to gastro-enterostomy do not obtain here, as the operation is done at the normal physiologic outlet of food from the stomach. Finney and Friedenwald[9] report a group of 100 cases in which operation was performed by Finney's method. Five of the patients died soon after the operation. The final results in seventeen are unknown, as the patients could not be traced. Of the remaining number, results are classified as being satisfactory in seventy-three, or 93.6 per cent. of those traced. It is not stated whether the term "satisfactory" means "complaint free." If it does, the results are excellent, but, if not, it would be difficult to compare these statistics with those of Balfour or of Smithies. At any rate the results appear to be better than after gastro-enterostomy. Finney and Friedenwald say that the contraindications for this operation are inability to mobilize the duodenum, and thickening and infiltration about the pylorus.

Finney's operation, while a distinct improvement on gastro-enterostomy, is not free from objections. It seems to have been conceived partly with the idea of making it a gravity drainage operation, when, as already pointed out, drainage of a hollow muscular organ, such as the bladder or bowel, does not have to be from the lowest point in order to be effective. Mobilization of the duodenum, which is necessary for this operation, may be quite difficult and, according to Finney, where numerous adhesions exist, his operation often cannot be done. The incision is made near the greater curvature of the stomach, where the vessels are large. The pylorus is divided in such a manner that it cannot reunite, and its sphincteric action would seem to be permanently impaired. If there is cicatricial contraction at the pylorus, the scar tissue must be sutured to scar tissue, for the apex of both the posterior and anterior margins of the sutured wound are at the pylorus.

HEINEKE-MIKULICZ OPERATION

The Heineke-Mikulicz operation, which was conceived to remedy pyloric stenosis, is generally supposed to be a straight incision with its center at the pylorus or at the point of constriction, the incision being sewed up transversely. Such is the description of the Heineke-Mikulicz operation as it appears in many textbooks.[10] In Binnie's Operative Surgery, 7th edition, p. 385, a description is given of this operation that resembles somewhat the Finney operation. However, the Heineke-Mikulicz operation in its usual conception as being a straight incision with its center at the point of constriction or at the pylorus, the incision being

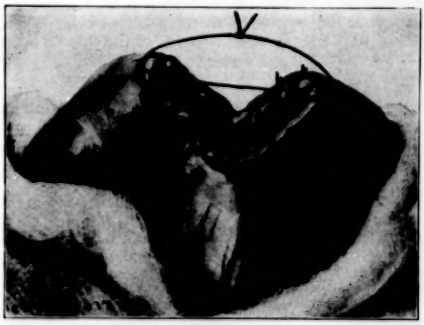

Fig. 5.—In the first step of closing the incision, a suture of tanned catgut is inserted from the end of the stomach incision to the end of the duodenal incision. Then a second suture is placed half way between this stitch and the upper angle of the wound.

sewed up transversely, finds but few advocates. Grey Turner[11] reports a small series of cases done by this method in which the results are quite satisfactory. As a rule, however, these objections are made to the Heineke-Mikulicz as ordinarily performed: 1. It cre-

8. Ginsburg, H.; Tumpowsky, I., and Hamburger, W. W.: The Newer Interpretation of the Gastric Pain in Chronic Ulcer, J. A. M. A. **67**: 990 (Sept. 30) 1916. Hardt, L. L. J.: Pain in Active Pathologic Processes in Stomach or Duodenum, ibid. **70**: 837 (March 23) 1918.

9. Finney, J. M. T., and Friedenwald, Julius: Thirteen Years' Experience with Pyloroplasty, Surg., Gynec. & Obst. **18**: 273-284 (March) 1914.

10. Bryant: Operative Surgery **11**: 943, 1905. Dacosta: Modern Surgery, Ed. 7, 1918, p. 1081. American Text-Book of Surgery, Ed. 4, p. 790. Warbasse: Pyloroplasty by Surgical Treatment, **11**: 738, 1918.

11. Turner, G.: Surg., Gynec. & Obst. **14**: 537 (June) 1912.

ates a pouch with a slight constriction on the stomach side and on the duodenal side. Half of this pouch is made of the duodenum whose walls are much weaker than the walls of the stomach and it may be difficult to empty such a pouch. 2. The incision cannot be made very long because it would extend too far into the duodenum, which would have to be mobilized, and even then the tension of the sutures on the thin duodenal wall would be too great. 3. When stenosis exists, each end of the sutured wound consists of scar tissue which is sutured to scar tissue, for the center of the incision is at the point of constriction. 4. There is a tendency in healing for the pylorus to be drawn up high under the liver.

Fig. 6.—These two interrupted sutures are tied, their ends left long, and the suturing is begun at the lower angle with a curved needle and tanned catgut. A continuous lock stitch is used which gently approximates the mucosa. The two interrupted sutures, with the ends left long for traction, greatly facilitate suturing.

THE NEW PYLOROPLASTY

There is one part of the body in which an ulcer in the region of a sphincter has been the object of surgical observation since the earliest times of recorded surgery, and the treatment of this condition has become satisfactorily standardized. This is ulcer or fissure in ano. The analogy between an ulcer in ano and a duodenal or pyloric ulcer of the stomach which is in the region of the pyloric sphincter is striking. We know that the ulcer in ano does not heal readily because of the almost continuous action of the sphincter ani, which alternately compresses or relaxes the tissues in its neighborhood, and that in order to cure it we must employ the principle of physiologic rest and paralyze the sphincter temporarily, and at the same time excise or cauterize the ulcer. In this manner we remove the pathologic condition and institute rest for these tissues. We would not think of treating a fissure in ano by doing a colostomy and side-switching the fecal contents, particularly if the colostomy permitted a small amount of fecal matter to continue to pass through the anus; and yet in performing a gastro-enterostomy for the cure of a pyloric or duodenal ulcer we are practically doing just this very thing. By using the well known surgical principles that have been established for years for the treatment of fissure in ano, namely, temporary paralysis of the sphincter and excision or cauterization of the ulcer, we can cure practically 100 per cent. of such cases. If, then, the ulcer in the duodenum or pylorus is not cancerous and is the only pathologic lesion, have we not a right to expect as good results here, so far as ultimate cure is concerned, by excision of this ulcer and temporary paralysis of the sphincter muscles, as has been obtained since the early days of surgery by similar treatment of an ulcer within the region of the sphincter ani? The operation here proposed has been conceived on these principles, and an effort has been made to carry them out as far as possible, at the same time avoiding the objections that have been noted to other types of pyloroplasty. The steps of the operation are:

1. The upper portion of the duodenum and the pyloric end of the stomach are exposed through an ample abdominal incision, and a point is selected in the midline of the anterior surface of the duodenum an inch from the pylorus, and another point on the stomach not less than two inches from the pylorus and midway between the greater and lesser curvatures (Fig. 1). Each of these points is grasped with Allis forceps or fixed with a suture. The stomach and duodenum are then surrounded with moist gauze.

2. An incision is made with a sharp knife from the point on the duodenum to the point on the stomach. If the ulcer is in the anterior surface of the duodenum, the incision should pass along the lower edge of the ulcer (Fig. 1). An effort is made to divide the peritoneal and muscular coats without opening the mucosa. The incision should go no farther than 1 inch into the duodenum. It extends 2 inches or more into the stomach. The bleeding points or exposed vessels are clamped.

3. The mucosa is incised and any further bleeding points are clamped, care being taken to include as little of the mucosa in the grasp of the forceps as possible. The vessels are tied with catgut (Fig. 2). If there is a tendency for duodenal contents to regurgitate, gauze wrung out of warm salt solution is gently packed into the duodenum. Moist gauze can also be placed in the stomach if necessary. If the ulcer is along the incision, it is excised from the mucous surface and the forceps, scissors, and knife used in the excision are laid aside, as they are probably septic. Because the mucosa in this region is almost free from bacteria except in the ulcer, there is no occasion to disinfect the normal mucosa, as there would be in operations on the intestine lower down.

Fig. 7.—A second row, mattress or right-angle sutures, is placed, burying the first row in the mucosa; and then a third row, which takes in the peritoneum and muscle, buries both the other rows.

4. If the ulcer is in the posterior wall of the duodenum or pylorus, the wound is retracted, the ulcer exposed and

excised, the deeper structures are sutured with tanned or chromic catgut, and the mucosa is gently approximated by a continuous suture. The suture in the mucosa must not be tight, as this might cause necrosis of the mucosa and spread the ulcer. If there is an old contraction resulting in pockets, the mucosa and the contracting band should be divided and the mucosa sutured transversely to the incision. To avoid hemorrhage, the incision that relieves the contracting band should be short and should divide only the superficial part

Fig. 8.—A piece of gastrocolic omentum is brought over the incision and fastened with interrupted stitches of tanned catgut. Inset (a) shows, diagrammatically, that the pylorus is widened but not destroyed, that the outer end of the stomach is converted from a cone to a rectangle, and that there are no constrictions or pockets.

of the band. The neglect of this precaution resulted in a fatal secondary hemorrhage in my last pyloroplasty (Figs. 3 and 4).

5. The ulcer having been removed or pockets and contractions remedied, the ends of the incision are approximated by a tanned or chromic catgut suture (Fig. 5). A second suture of similar material placed half way between this middle suture and the upper angle of the wound renders suturing the upper half of the incision easier. Both are tied and their ends left long to facilitate suturing and to hold up the edges of the wound if there is a tendency of gastric or duodenal contents to overflow. A No. 1 tanned or chromic catgut suture is then started at the lowest portion of the wound, *which is in the stomach wall.* It is tied, the short end clamped, and the mucous membrane united by a lock stitch which barely approximates the mucosa and ends at the upper portion of the incision, *which is also in the stomach wall.* Before completing this suture any gauze packing in the duodenum or stomach is removed. The suture is tied at the upper portion of the wound and the ends are left long and clamped (Fig. 6).

6. A second row of sutures, consisting of the same kind of catgut, in a curved round needle, is inserted, taking in the muscular coat. This is a continuous mattress or right-angle stitch. Only enough tissue is included in the sutures to secure a firm hold. The long ends of the previous row are cut short.

7. A third row of sutures of fine tanned or chromic catgut is placed, but the gauze around the stomach and duodenum should be removed before this third row is begun, as gauze packing hinders the approximation of the peritoneum. This row includes the peritoneum and muscular coats and buries the first and the second rows of sutures completely. This is also a continuous mattress suture (Fig. 7).

8. A portion of the gastrocolic omentum, or else the right edge of the great omentum, can be brought up over the line of incision without tension. It is fastened here with interrupted stitches of fine catgut. Care should be taken that it barely covers the upper end of the sutured wound and that it is not fastened to the gastrohepatic omentum, as this might result in too complete a surrounding of the pyloric end of the stomach (Fig. 8).

9. If the ulcer is not in the duodenum or the pyloric region, the operation, as just described, may be done in order to relieve the spasm of the pylorus and the ulcer then excised, or cauterized, as advocated by Balfour, through another gastric incision.

The advantages of this operation are:

1. It removes the obstruction and the pathologic condition, and permits the normal resumption of the stomach function.

2. The ends of the sutured incision are within the stomach wall. The ratio of the incision should never be less than two parts in the stomach to one in the duodenum. Usually 2 inches in the stomach and 1 in the duodenum are sufficient. The anterior stomach wall in the midline can readily be pulled over to the first inch of the duodenum. In the Heineke-Mikulicz operation, and also in the upper part of the Finney operation, the ends of the sutured incision are in the scar tissue at the pylorus, while in this operation the ends of the sutured incision are within the healthy stomach wall, and the scar tissue that may remain about the pylorus is approximated, not to other scar tissue, but to healthy stomach wall. Consequently, union should be more satisfactory than where scar tissue is opposed to scar tissue, as in the other two types of pyloroplasty.

3. There is no pouch formation as in the Heineke-Mikulicz operation, in which the center of the incision is at the pylorus. The operation merely changes the shape of the pyloric end of the stomach from a funnel with gradually approaching walls to a rectangle that empties into a funnel with a more obtuse angle.

4. The parts to be put at rest are the parts most concerned in contraction and relaxation, which are the pylorus and the adjacent portion of the stomach. By making the incision from the duodenum about 2 inches into the stomach, this is effected. A long incision into the duodenum does not help in any way.

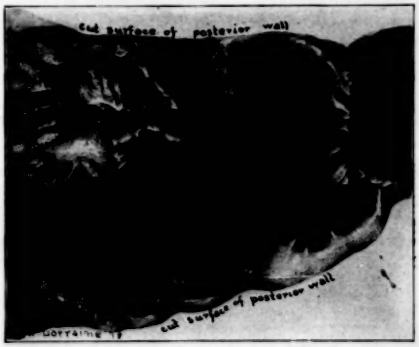

Fig. 9.—Drawing of stomach removed at necropsy of A. R. The incision was made in the posterior wall of the stomach. Note the ulcer that involves the lesser curvature and the large blood vessel protruding in the ulcer. Also note the healing of the pyloroplasty, which makes a wide opening. The patient died from hemorrhage from the gastric ulcer twenty-one days after operation.

5. The function of the pylorus and pyloric end of the stomach is not permanently destroyed. The stomach wall that is brought over acts as a link between the ends of the pyloric sphincter, and, in the course of time (usually a few weeks), the sphincter resumes its action, though, because it has been enlarged, it cannot become spastic as it was before the operation.

6. The operation is simpler than the Finney operation, in which the duodenum has to be mobilized and the posterior and the anterior margins of the wound must be sutured separately.

There is a superficial resemblance between this operation and the Heineke-Mikulicz, because in both operations the pylorus is divided and in both the incision is approximately straight. Here, however, the resemblance ceases, and the differences become marked, for, unlike the Heineke-Mikulicz, the operation described was conceived on the principle of giving temporary physiologic rest to tissues in the pylorus and the pyloric end of the stomach; the incision is longer than in the Heineke-Mikulicz operation; it is differently placed; it extends not more than 1 inch into the duodenum nor less than 2 inches into the stomach; it can be considerably prolonged at the stomach end; it gives an excellent view of the pyloric end of the stomach; it requires a rather definite technic to be closed satisfactorily; it does not form a pouch with a constriction fore and aft; it does not approximate scar tissue to scar tissue, and an essential part of the operation is the removing or remedying of the pathologic condition by excising the ulcer, obliterating pockets, or

Fig. 10.—A roentgenogram of the stomach of W. J. B., taken two days before operation. There was constant deformity of the duodenal cap. The patient had been suffering for a number of years. The diagnosis was duodenal ulcer.

Fig. 11.—A roentgenogram of the stomach of W. J. B., taken four months after the pyloroplasty. Note the improved tone of the stomach and the ready emptying.

incising constricting bands (Figs. 2, 3 and 4). In addition, the reinforcing with omentum (Fig. 8) adds security to the sutures, prevents adhesions to surrounding tissues, and counteracts the tendency for the pylorus to become fixed high up under the liver, which sometimes occurs after the Heineke-Mikulicz operation.

The postoperative treatment is about the same as that employed for gastro-enterostomy. If there is any vomiting or marked discomfort, the stomach should be promptly washed out under low pressure, not more than a pint of fluid being used at a time. The head of the bed is elevated from 12 to 18 inches, and the patient is given one-half ounce of hot water every hour for the first twenty-four hours and after that 2 ounces of hot water every hour for twenty-four hours. Enemas of 6 ounces of physiologic sodium chlorid solution with one-half ounce of glucose and 1 dram of sodium bicarbonate are given every six hours for the first two days. At the end of forty-eight hours a small amount of liquid nourishment, but not including milk, is commenced and continued until the fourth day after operation, when milk is added to the diet. About the seventh or eighth day after operation a purgative is given and soft diet is begun.

CLINICAL REPORT

The first operation of the new pyloroplasty was done on Mrs. G. A. H., April 4, 1918. Five days later, April 9, I did a gastro-enterostomy on a man with duodenal ulcer. In the case of Mrs. G. A. H., gastro-enterostomy could not be performed because there were extensive adhesions in the lesser peritoneal cavity. Gastro-enterostomy was done on the man because I was not then assured of the full value of the pyloroplasty. Mrs. G. A. H., however, made such a satisfactory recovery that I have done the pyloroplasty in every case of duodenal or gastric ulcer since April 9, 1918, and since that date I have not done a gastro-enterostomy.

I have so far done eleven of the new pyloroplasties. Three of the operations were for gastric ulcer, two being for ulcer in the cardiac portion of the stomach on the posterior wall near the lesser curvature. In both of these cases, the ulcer was in a similar location and was reached through an incision in the anterior wall of the stomach.

Case 1.—A. R. was operated on Sept. 23, 1918, for gastric ulcer. The ulcer had not quite perforated, though the peritoneum appeared to be slightly adherent behind. The margins of the ulcer were excised, the mucosa was brought together with mattress stitches of tanned catgut, and then the pyloroplasty was done. The patient made an uneventful recovery from the operation and appeared to be doing well until the eighteenth day, when he had a moderately severe hemorrhage from the stomach. After gastric lavage with hot water the bleeding seemed controlled. Twenty-four hours later, however, he began vomiting blood and, in spite of gastric lavage and transfusion of blood, he died, Oct. 14, 1918. Necropsy was held a few hours after the death of the patient, and the stomach was obtained. It showed that the pylorus had healed satisfactorily, but the ulcer had extended to the lesser curvature and involved a blood vessel of considerable size, which was protruding from the ulcer. From this vessel the hemorrhage apparently had come (Fig. 9). Doubtless the ulcer was sutured too tightly, necrosis of the mucosa resulted, and the ulcer spread.

Case 2.—In the second patient with gastric ulcer (L. B.), an ulcer in a similar location had perforated and a small abscess had formed. A transgastric operation was done, Sept. 27, 1918, and an effort was made to approximate the edges of the ulcer by mattress sutures and a continuous lock stitch within the stomach. The pyloroplasty was then done, and a drainage tube carried down to the abscess anteriorly, without disturbing the adhesions elsewhere. In three days the gastric contents appeared through the drainage tube. The fistula closed in about three weeks, and the patient went home and improved considerably. Four months later, however, he began to have symptoms similar to those before operation. A roentgenographic examination by Dr. A. L. Gray, May 11, 1919, revealed spastic hour-glass contraction about the ulcer, but the pyloric end of the stomach was emptying rapidly and satisfactorily. The patient was again operated on, May 13, 1919. There was no abscess, but the ulcer persisted and was adherent to the liver and pancreas. The ulcer and a portion of the surrounding healthy stomach wall were excised. There were considerable adhesions, but the pylorus appeared to be in a satisfactory condition. The patient is recovering uneventfully.

Case 3.—In the case of M. L. S., the ulcer was prepyloric, being about 1 inch from the pylorus on the posterior gastric wall near the greater curvature. This ulcer was easily excised through the incision for pyloroplasty (May 6, 1919), an operation which gave excellent exposure. The patient recovered uneventfully and is now complaint-free.

Two patients were operated on for stenosis of the pylorus and six for duodenal ulcer. The stenosis was marked with a large amount of connective tissue in both cases. The cicatricial band that formed pockets posteriorly was cut, as shown in Figures 3 and 4, and the mucous membrane sutured transversely to the incision. Of the six duodenal ulcer cases, three had extensive adhesions. In two of these there had been a previous perforation with leakage of the duodenal contents. In one, operation was done about three months after the perforation, and in the other about sixteen months after perforation. Of the remaining three cases two were simple nonadherent duodenal ulcers on the anterior surface of the duodenum and the third was on the upper border of the duodenum.

CASE 4.—All the patients except this one (Mrs. W. W. H.) were examined roentgenographically, and a diagnosis of ulcer was made before operation. In this instance the patient weighed about 230 pounds, and the history seemed to indicate gallbladder trouble. Operation showed the gallbladder thickened, moderately adherent and without stones, but there was an ulcer in the upper border of the duodenum which appeared about to perforate. On account of the fat of the patient and the fact that the duodenal portion of the pyloroplastic incision was placed too near the ulcer, the operation was more difficult in this instance than in any other. She is now complaint free.

This series of cases represents most of the types of ulcer that we have seen, and yet the operation could be done effectively in each case, though in two there was pyloric stenosis and much scar tissue, and in two there had been previous duodenal perforation followed by extensive adhesions.

FINAL RESULTS

Nine of the eleven patients are now living and have been communicated with during the last few weeks. One gastric ulcer patient (L. B.), as described above, has recently been reoperated on for excision of the gastric ulcer, which was not cured by the original operation. He is recovering satisfactorily. The prepyloric ulcer patient, M. L. S. (operated on May 6, 1919), is in excellent condition and is complaint free. Of the two patients with pyloric stenosis, one (F. P. B., operated on May 15, 1919, and the last pyloroplasty that was done) recovered uneventfully till the eighth day after operation, when secondary hemorrhage began, and, in spite of gastric lavage with hot water and transfusion of blood, the patient died the tenth day after operation. Necropsy showed the bleeding came from small vessels in the region where the posterior cicatricial band was cut. The anterior pyloroplasty incision was in excellent condition and the pylorus was wide open. The other (R. D. L., operated on Jan. 22, 1919) has gained 30 pounds and is complaint free. Of the six duodenal ulcer patients (operated on April 4, July 3, July 30, Oct. 4, 1918, Jan. 22, March 31, 1919) four are entirely complaint free. Two express themselves as being greatly improved, but still have minor symptoms, such as occasional gas and gastric discomfort, particularly when imprudent in their diet. Of these two patients one (Miss E. D. H.) had, in addition to a duodenal ulcer, marked ptosis of the stomach and transverse colon, but only the pyloroplasty was done and the appendix removed, no operation being done for the ptosis. If this patient wears an abdominal support she is comfortable and complaint free. She says she is greatly improved (Fig. 13). There is no change in weight. She follows her profession as a trained nurse.

In the other patient (W. W. G.) there had been severe hemorrhage a few days before operation, and at the time of operation there appeared to be acute cholecystitis, the gallbladder being enlarged and congested, and the duodenal ulcer, which had been demonstrated by the roentgen ray previous to operation, was small and nonadherent. The pyloroplasty was done, but, as the gallbladder seemed to be the major trouble at the time, it was drained. This patient now looks well, and feels well most of the time, but has occasional "indigestion" and has to be particular about his diet. He expresses himself as being greatly improved; he works hard, and has gained about 18 pounds in weight since a short time before operation. In these two cases the duodenal ulcer was not the sole and probably not even the chief cause of the symptoms. The symptoms from ptosis seem relieved by an abdominal support, and cholecystitis and drainage probably produced adhesions to which may be attributed the few disagreeable symptoms which the other patient now occasionally suffers.

Five patients were, after the operations, studied with roentgen rays by Dr. A. L. Gray, professor of roentgenology in the Medical College of Virginia. His

Fig. 12.—A roentgenogram of the stomach of Mrs. G. A. H., taken about one year after pyloroplasty. The patient had had a previous duodenal perforation, and there were numerous adhesions. The stomach is emptying satisfactorily.

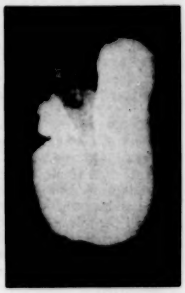

Fig. 13.—A roentgenogram of the stomach of Miss E. D. H., taken four and one-half months after the pyloroplasty for duodenal ulcer. The patient had marked ptosis. There were no adhesions. The pylorus, as shown, is functioning normally, with a perfect duodenal cap. The pylorus is a little wider than normal.

reports show that the pylorus has returned to its function, though it seems to be somewhat more open than usual. In all of the five patients examined by him, the stomach emptied satisfactorily except in one instance (Miss E. D. H., the patient with ptosis), in which the emptying time, though delayed, is markedly improved over what it was before operation.

Of the five patients in whom the duodenal ulcer (four cases) or stenosis (one case) appeared to be the chief or the only pathologic condition, every one is now complaint free. One has gained 32 pounds, one 30 pounds, one 20 pounds, one 9 pounds, and one (Mrs. W. W. H.) has not gained in weight.

Summing the clinical results, I find there were eleven patients on whom the new pyloroplasty was done, two of whom died. Of this number, three patients had gastric ulcers, with one death, which can hardly be justly attributed to the pyloroplasty; one is complaint free; one had recurrence, which required another oper-

ation, done recently, on the ulcer. There were two patients with pyloric stenosis; one is complaint free, the other died on the tenth day after operation of secondary hemorrhage from the incision in the posterior constricting band. This incision had been made too deep. There were six patients with duodenal ulcer; two, in whom the ulcer was probably not the chief pathologic condition, are greatly improved, but not complaint free; and four, in whom the ulcer was the sole or the chief lesion, are complaint free.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BALFOUR AND HORSLEY

DR. RAYMOND P. SULLIVAN, Brooklyn: Dr. Balfour has presented clearly and concisely the interesting subject of recurrent hemorrhage from a gastric or duodenal ulcer. Three points are worthy of emphasis: (1) From the records of such a large clinic, it is evident that gastric hemorrhage is an indication of ulcer in only 25.8 per cent. of gastric ulcer and 20 per cent. of duodenal ulcer cases. Hence, the diagnosis of ulcer depends more especially on the clinical history and roentgen-ray findings. Gastric hemorrhage no longer has the significance formerly attributed to it in the diagnosis of ulcer, but is a very important factor when preceded or followed by definite symptoms. (2) The technic of handling either gastric or duodenal ulcer should be simple and direct. Excision is indicated in gastric ulcer but, when complicated by bleeding, duodenal excision or destruction should be practiced. Three methods of excision may be considered: (*a*) Suture exclusion or devitilization. This method is rarely practiced today because of its uncertainty in uniformly removing infected tissue, and it has given way to more direct methods. (*b*) Excision by knife, followed by suture closure, is probably the most universal practice. However, it is apt to be attended by removal of too much tissue predisposing to greater subsequent deformity, or too little, thus favoring recurrence of ulcer, especially if nonabsorbable suture material is used, or retention of early cancer cells. (*c*) Perforation and destruction by actual cautery is direct and is attended by all the advantages of heat for sterilization; destruction of early cancer cells and control of hemorrhage. Whichever method is used, gastro-enterostomy should follow. In all bleeding duodenal ulcers, ligation of vessels immediately proximate to the ulcer must be considered, although undoubtedly Balfour's method of cautery destruction is a direct attack for destruction of the ulcer area. The third practical lesson to be derived from the paper is that gastro-enterostomy is never indicated because of gastric hemorrhage alone. Nevertheless most cases of gastric hemorrhage are probably surgical due to septic condition of the gallbladder and pancreas or spleen or appendix. I wish to draw attention to the fact that a varicose condition of the veins of the cardia, which frequently accompanies heart or liver disease or in arteriosclerosis, may give rise to gastric hemorrhage, especially if lavage is practiced. In dealing with a perforating adherent bleeding ulcer of the posterior wall of the stomach, the operative procedure must depend on the skill and judgment of the operator. Future risk to the patient for recurrent hemorrhage or development of cancer will depend on the radical removal of the ulcer area. In these cases I have used a combined cautery method after careful knife dissection of the adherent area and have had satisfactory results. The figures presented by Dr. Balfour indicate that a cautery destruction of bleeding ulcers offers a greater protection to the patient against recurrent hemorrhage, and it promises to be a standard technic.

DR. ALFRED A. STRAUSS, Chicago: I think Dr. Balfour has given the medical profession something to think about regarding the value of simple gastro-enterostomy. I hope he will be more successful in persuading the profession on this point than I was five years ago, when I insisted that gastro-enterostomy alone has little value in gastric and duodenal ulcer, and that all ulcers should be excised, if at all possible. At that time I demonstrated methods of excising ulcers, not only in the upper portion of the stomach but also in the pyloric region and in the duodenum, by reconstructing those portions of the stomach, after excision of the ulcer, by means of fascial transplants reinforced by the free edge of the attached omentum. The use of the omentum not only prevents hemorrhage and leakage, but also furnishes a new collateral blood supply to that portion of the stomach. For the ulcers occurring on the posterior wall of the body of the stomach, which are adherent and cannot be freed, the transgastric incision through the anterior wall of the stomach and the Balfour cauterization method are ideal. As to the question of excision versus cauterization, I do not think one can always tell whether or not the ulcer is malignant, as shown by McCarthy of the Mayo Clinic. It can readily be seen that the Balfour method of plunging the cautery into the center of the ulcer may leave the malignant edges of the ulcer. I therefore believe that wide excision by means of the cautery knife is more effective. I do not believe that gastro-enterostomy after excision of the ulcer is necessary. The purpose of this gastro-enterostomy is to give the stomach a normal, or quicker than normal, emptying time and this can be accomplished by a very simple pyloroplasty. By making an incision one inch in length extending from the pyloric ring back onto the stomach, through the muscularis down to the mucosa, and a half inch incision along the ring at right angles to the first incision on each side, a wedge shaped piece of the pyloric muscularis can be removed. This allows the mucosa to bulge and this is covered with the free edge of the attached omentum. This simple plastic operation can be done in a few minutes; it destroys the sphincter control and allows the stomach to empty from one and one half to two hours. A fluoroscopic examination of sixteen cases operated by this method showed the emptying time to be from one and one half to two hours.

DR. J. B. BLAKE, Boston: Dr. Horsley has reported his unfavorable as well as his favorable results. If this were not true an operation which suggests the limitation of gastro-enterostomy could not be so well considered. I want to comment on three points in his paper: (1) The parallel which exists between ulcers of the anal sphincter and ulcers of the pyloric sphincter; (2) the function of the pylorus and the importance of maintaining that function, restoring it if possible, and (3) the very great importance of giving this method a fair trial and the necessity of following exactly what Dr. Horsley has pointed out if we are to try his method. So far as I am aware this is the first time that a parallel has been cited between an ulcer of the anal sphincter and ulcer of the pyloric sphincter. At first it seems a little far-fetched but if you will recall what Dr. Horsley pointed out the parallel is closer than one might at first believe. The action of both sphincters is essential to health. One cannot be absolutely normal with the exclusion or removal of either of the two sphincters. The ulcer in one is as much a source of irritation and spasm as in the other. Dr. Horsley referred to the fact that the stomach is not a passive bag and cannot be drained by a hole in the bottom, that the pylorus is a bit of highly organized physiologic tissue intended to empty the stomach. That it will do so is proved by the fact that any effort of exclusion of the pylorus other than excision has practically never been successful. Even if the pylorus is damaged, it still attempts, and is usually successful in emptying at least part of the stomach. Operations before this time have been of one or two classes. Surgeons have done gastro-enterostomy and excised the pylorus or else they have done one of the exclusion operations which are never successful. I am speaking particularly of cases in which gastro-enterostomy is done and nothing else. Dr. Balfour has shown that in the bleeding ulcer it is not effective, certainly not in ulcers in which bleeding is a prominent feature. If we can substitute an effective operation on the pylorus and restore its function gastro-enterostomy may become unnecessary. No operation can stand, nor should it fall, on the experience or the operative technic of one man alone. Dr. Horsley's operation should be repeated by good operators in all parts of the country. Only then will it be known whether this is going to limit gastro-enterostomy and give something more efficient and more simple.

Dr. Horsley's operation is useful if the ulcer is situated on the anterior surface of the duodenum and if the pyloric ring and antrum are wide. If they are narrow the operation would seem rather difficult. I think a procedure which I have employed a number of times after excision of a duodenal ulcer is more practicable. By taking a tongue-shaped portion of the pyloric antrum and pulling it through the incised ring, the defect left by removal of the ulcer may be corrected. The mucosa and the muscularis are sutured separately and the edges do not have to be inverted. The free edge of the omentum is brought over the operated area. In the ulcers on the lesser curvature demonstrated by Dr. Horsley I do not think that the additional extensive plastic operation for paralyzing the pyloric sphincter is justifiable, when the same effect can be accomplished by cutting a small portion of the pyloric sphincter muscle away, without incising the mucosa.

DR. JOHN T. BOTTOMLEY, Boston: The crux of the matter, of course, is the removal of the ulcer. We must remember, too, that when we excise an ulcer of the stomach or the duodenum we are removing only the end stage of some other pathologic process; hence we should always search for the foci of infection in the gallbladder, appendix, teeth, tonsils, or elsewhere. Even destruction of the ulcer by cautery will not always result in its cure. I have operated on an ulcer of the stomach which had been twice thoroughly cauterized by a most competent surgeon; the symptoms continued until finally resection of the stomach had to be done. No one method is a cure-all in cases of ulcer of the stomach. Destruction by the cautery is not an absolutely certain method of cure but it is a most excellent method and should be tried. I am surprised that so accurate an observer as Dr. Blake failed to remember that Dr. Codman of Boston years ago called attention to the parallelism between the sphincter of the pylorus and the anal sphincter.

DR. GEORGE GOODHUE, Dayton, Ohio: The operation on my duodenal ulcer consisted in ligation of vessels running to the ulcer and a gastro-enterostomy ten days after a very severe hemorrhage. Perhaps I am prejudiced but I am in favor of that operation. Surely the mortality of 1.6 per cent. as compared with two out of eleven would seem to lead us to accept gastro-enterostomy as formerly done. For eight years prior to my hemorrhage I was aware of the possession of a duodenal ulcer but I hesitated in accepting an operation because foreign publications in regard to results were unfavorable and the Rochester Clinic had not published a very full report at that time. Their later report, if I remember correctly, shows that about 98 per cent. of operations for cure of duodenal ulcer by gastro-enterostomy give satisfactory results. It seems to me that with such a statement as that we should be inclined to follow the old method unless something else could be shown to be much superior. So far as my own personal condition is concerned, I am unaware of any operation having been done. The fluoroscope shows everything passing through the new opening and I think some of the faults which have led to disfavor in this operation consisted in making the opening too near the cardiac end, as pointed out by Hartmann of France. It should be made in the motor part of the stomach, the pyloric end. It strikes me that the operation as done at the Rochester Clinic and by most other surgeons is founded on a reasonable and scientific basis and should not be discarded too readily.

DR. JOHN J. GILBRIDE, Philadelphia: Relative to these cases of severe hemorrhage in duodenal ulcer I wish to call attention to an unusual situation of duodenal ulcer occasionally observed. A number of years ago I saw in a Philadelphia hospital a man who was suffering from severe hemorrhage from a duodenal ulcer. This man died before the operation from hemorrhage. At the necropsy on exposure of the upper abdomen there was no sign of lesion in the duodenum. However, on opening the duodenum the ulcer was found in the upper and inner wall. Of course, unless one had considerable confidence in his diagnosis this case surely would have been missed even at operation. With confidence that one is dealing with duodenal ulcer the thing to do would be, of course, to make an incision through the duodenum and expose the ulcer. In the case referred to a gastro-enterostomy would not have been life saving. Then, again, one would have to be quite certain of the anatomy to deal with the ulcer here owing to the risk of occluding the common bile duct. In these cases, in speaking of the ligation of arteries for ulcer situated in other localities, of course, it would be perfectly obvious that it would be necessary in such a case as this one to ligate the duodenal branch of the gastroduodenalis artery and then do a gastro-enterostomy after closing the duodenal incision. Whether one would wish to deal with such an ulcer locally would be left to the individual operator. So far as I know such cases are not frequent. And this is the only case of which I have knowledge of an ulcer in this situation.

DR. ALBERT J. OCHSNER, Chicago: I wish to direct attention to a faulty premise which is introduced into every discussion of this subject. In experiments by Cannon and Blake the stomach of the healthy animals had the form needed to do its physiologic work. It is the business of the stomach to store a certain amount of food in one portion, grind it in another portion and deliver it through a normal pylorus. The diseased stomachs which we consider in these discussions have an accumulation of connective tissue and an obstruction in the region of the pylorus which produces an entirely different machine. When you make a gastro-enterostomy you permit the residual decomposed material to pass out of the pouch in the stomach into the duodenum. The conditions are entirely different from those in a normal stomach which could take care of its contents in a normal way. After that has happened, because there could no longer exist a quantity of residual material and you have given the musculature of the stomach time to resume its physiologic work, you make your observations again and find that the stomach walls are again doing their physiologic function in the old way.

Fig. 1.—*a*, gastric pouch; *b*, pylorus; *c*, duodenum; *d*, umbilicus. The stomach outlet is at the lowest point in a normal stomach.

Fig. 2.—The position of these points is altered in the dilated stomach; hence the gastro-enterostomy opening is made between *a* and *b*.

DR. MILES F. PORTER, Fort Wayne, Ind.: Dr. Balfour said that not a few of these hemorrhages from the stomach and duodenum have their origin in toxic conditions elsewhere than in the stomach. He referred to the gallbladder, the pancreas and other organs as being possible sites of the process giving rise to toxic conditions. All of these points are worthy of emphasis. A further fact to which I would call attention is that given an individual who has, or has had, an ulcer of the stomach and has now the remains of it with the hemorrhage, it does not follow that the hemorrhage comes because of the ulcer. A patient came to me to be relieved of severe hemorrhage supposed to be due to a duodenal ulcer first diagnosed by me about fifteen years before. I did a posterior gastro-enterostomy and found a small insignificant scar on the anterior aspect of the duodenum within half an inch of the pylorus. For a few days he had a rather stormy time, apparently from kidney insufficiency, but after that he made a prompt recovery. He went along nicely for a time and then had a sudden hemorrhage. He was referred to another clinic and the pyloric portion of his stomach was removed. The man made another recovery and came back home. He had another collapse and another hemorrhage, and this has been

repeated several times. My point is that my diagnosis was correct. He did have a duodenal ulcer, but he was bleeding because he had an arterial condition largely the result of a chronic contracted kidney which I overlooked. I made a mistake when I did the operation on his stomach. My friend who operated afterward made another mistake. There is some way, perhaps, by which we might arrive at the correct conclusion in these cases. If there is I would like to know how to do it.

Dr. William J. Mayo, Rochester, Minn.: I am very much interested in the operation proposed by Dr. Horsley, because the last word has not been said concerning ulcers of the stomach, and the best procedures for getting rid of them. I think, however, that we should ask Dr. Horsley to come before us next year when he will have had an opportunity to perfect his technic. As Dr. Blake says, in order to test the method his technic should be followed exactly. I must say that the two deaths in his eleven cases made me a bit conservative, although, as Dr. Horsley has pointed out, both deaths were due to accidental causes that might be avoided in the future. I think there is opportunity for such an operation and I hope that Dr. Horsley will carry it to its logical conclusion. The old question of cure as the result of operation comes up. Let us bear in mind that ulcers of the stomach and duodenum as they are seen by the surgeon are chronic diseases that have been treated medically for years. I have been asked, "When does a chronic ulcer of the stomach or duodenum become surgical?" For various reasons the answer has been: "After nine complete and perfect medical cures." With regard to the question of failure to cure surgically, I would put it down as a Hibernianism, that the first cause of failure is in doing an operation—gastro-enterostomy usually—on a patient who has no ulcer. We have records of having cut off more than 300 unnecessary gastro-enterostomies, closing the stomach and jejunum. These operations were done in cases in which there was no evidence either in the history or the condition found at the second operation that ulcer had existed. Fourteen of these were my own early cases. The most common cause of failure of operation to cure, when an ulcer really exists, is the use of silk as suture material which, in a certain percentage of cases, leads to secondary ulcer in the suture line. A very large majority of gastrojejunal ulcers (so-called jejunal) are due to ulcerations around silk sutures which cause the same symptoms as the original ulcer. In the course of time, in many instances, healing takes place as the silk passes out. Such cases are mostly responsible for the opinion that medical treatment is necessary after operation. In 1914 Dr. Charles H. Mayo stopped using silk. We all have now adopted catgut, and in more than 4,000 gastro-intestinal anastomoses of various kinds in the clinic there has not been a single instance in which catgut has failed to be satisfactory. Some of the gastrojejunal ulcers become chronic or complicated fistulas form between the colon, stomach, and jejunum. Regarding the excision by cautery and excision by knife: If an ulcer which is cancerous or is beginning to be cancerous is excised with the knife, cancerous cells may be grafted on the edges of the cut wall of the stomach. I have known this to happen so often that I am now afraid to cut into a cancer to take out a piece for microscopic examination, unless I remove the growth at once. I could report such unfortunate occurrences. We can say that there are three periods in the life of a normal cell, growth, function and senility. The malignant cell has but two periods, growth and senility; it has no period of function, but unfortunately it undergoes most active cell division in the embryonic stage. It has been shown that cancer cells are five times as vulnerable as the normal cells. If the cautery excision is used, cell division will be stopped at a distance beyond the actual excision.

Dr. Charles A. L. Reed, Cincinnati: When I heard Dr. Mayo say that the last word on this subject had not yet been spoken I was hopeful that he would speak it. Having listened to him I am still convinced that the last word has not been spoken; and I am quite sure that after I shall have concluded my remarks you, in turn, will say that the last word has not been spoken. The point to which I want to call attention is one which is of enormous importance in the pathology of this condition. Both the essayists called attention to the fact that in certain cases in which hemorrhage followed operation preexisting ptosis had remained uncorrected. I wish to call attention to the fact which has not been mentioned in either one of the papers that in every one of these cases in which this operation was done there was found the condition of extreme visceral cyanosis, a dammed back venous circulation, the primary effect of which is a gastric catarrh. With a general visceroptosis there will be, first, a general venous engorgement and, next, a resulting catarrhal condition of the duodenum and other portions of the alimentary tract, noticeably the colon. Then, as the back pressure in the veins increases to a certain point and the carbon dioxid content of the veins reaches a certain point, molecular death ensues in the follicles and the process of progressive ulceration is inaugurated. In the majority of these instances I am convinced, logically, although I am not able actually to demonstrate it, that these hemorrhages, preoperative and postoperative, are derived in whole or in part from the venous side of the circulation. Therefore, if you have a persistence of the ptosis which causes the venous engorgement and a persistence of the venous engorgement which causes the hemorrhage, you necessarily have a recurrence of the hemorrhage and a persistence of the ulcer. You have such general persistence of both these conditions simply because you have not eliminated the cause, or, in other words, the underlying pathologic factor in the venous circulation. I have been convinced of the importance of this angle of view by repeated experiences, and I find that in so far as I control and restore the venous circulation my recoveries are permanent, and that in so far as I fail to do this, my recoveries are uncertain, to say the least.

Dr. Donald C. Balfour, Rochester, Minn.: Ligation of vessels should always be considered when hemorrhage has occurred. Dr. Strauss makes a plea for excision alone in gastric ulcer. We have so frequently seen patients who have failed to secure relief from symptoms by excision alone, that we now always combine gastro-enterostomy with excision. Regarding excision by the knife or by cautery, Dr. W. J. Mayo has left nothing to be said, but I think the fact should be emphasized that experience with the cautery in malignancy shows that the cautery effectually destroys any cancer cells which may be in the ulcer base, and that knife excision of an ulcer which has undergone early malignant change is always associated with the danger of cancer cells grafting. The danger is avoided in cautery excision. In regard to the best operation in benign lesions of stomach and duodenum, any effort to establish a certain operation as a routine operation in such lesions is inadvisable, and it is only by making use of the various types of operations which have been devised that the surgeon will secure the best results.

Dr. J. Shelton Horsley, Richmond, Va.: The first death was due to hemorrhage from an ulcer in the cardiac portion of the posterior wall of the stomach. In the excision of this ulcer I did an intragastric incision and tied the mattress sutures too tightly in the mucosa of the stomach where the ulcer was excised. The second death was due to the fact that I cut too deeply. Here I am quite sure there would have been no occasion for secondary hemorrhage had I confined the incision to the scar tissue. It is hardly fair to condemn an operation because of two deaths of that character or to compare the mortality of a new procedure with that of a standardized operation such as gastro-enterostomy. Excluding stenosis and gastric ulcer, my mortality in duodenal ulcer is *nil*. I am doing the operation only because I believe I can get better results for my patients by this procedure. In treating ulcer in ano it is essential, after getting rid of the pathology, to obtain physiologic rest by eliminating or diminishing the function of the sphincter. In this operation we cut the pyloric end of the stomach for the same reason. Excision of the ulcer alone is not effectual. We incise at the region of greatest contraction and so give physiologic rest. I have used catgut throughout, following the suggestion of the Mayo Clinic. Dr. Ochsner said the stomachs in which operation for ulcer is done are dilated. This is because of obstruction or pyloric spasm, and if you remove the obstruction as advocated in this

pyloroplasty you decrease the burden of the stomach in emptying its contents and it returns to the physiologic norm. The facts are that in this pyloroplasty the pathology is excised or corrected, the tissues are put at physiologic rest during healing which is a first principle in all surgery, and the stomach is returned to its normal function. In gastro-enterostomy, even if one closes the pylorus, it opens and a portion of the food goes over the ulcer, so but little rest is afforded; the ulcer is often not removed; and the stomach function is anything but physiologic.

THE PHYSIOLOGY OF SNEEZING*

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Sneezing may be defined as a spasmodic expiration preceded by one or more spasmodic inspirations. The expiration is momentarily opposed by the closure of the nasopharynx and a more or less complete closure of the mouth. With the onset of the expiration there is a rapid rise of intrapulmonic pressure which, when a certain value is attained, suddenly forces open the nasopharyngeal partition. In consequence, a blast of air is driven into and through the nasal chambers; at the same time, however, the mouth, not infrequently, is partially opened, thus permitting a portion of the blast to be driven through the buccal orifice. The object of the sneezing spasm is the dislodgment of mucus or other fluid from the surface of the nasal mucous membrane.

The act of sneezing is, in its entirety, quite complex, and may be subdivided for convenience of presentation into two phases, a nasal and a respiratory, both of which are reflex in character and involve two different reflex mechanisms, a nasal and a respiratory. Each mechanism consists of afferent nerves, a central mechanism, effected nerves and responsive organs.

THE RESPIRATORY PHASE

As the effective portion of the sneeze is the respiratory, it will be conducive to clearness if this is considered first.

The primary activity in this reflex is a deep inspiration or an enlargement of the thorax and lungs, which has as a result the inhalation and temporary storage of a large volume of air, a condition essential to the satisfactory accomplishment of the object of the sneeze. The inspiration is an active process and is accomplished by the simultaneous and coordinate contraction of various groups of muscles, among which, as representatives, may be mentioned the posterior crico-arytenoids, the diaphragm and the external intercostals. The coordinate action of the three groups of muscles implies the coordinate activity of three groups of nerve centers and their related nerves; thus, the activity of the posterior crico-arytenoids is called forth by the discharge of energy from the laryngeal center in the medulla oblongata, and transmitted by efferent fibers in the trunk of the vagus and their continuation in the inferior or recurrent laryngeal; the activity of the diaphragm and the external intercostals is called forth by the discharge of energy from the phrenic and intercostal centers in the cervical and thoracic segments of the spinal cord, respectively, and transmitted by the phrenic and intercostal nerves.

The coordinate contraction of the different inspiratory muscles implies a practically simultaneous discharge of nerve energy from each of the foregoing nerve centers; and this in turn necessitates the existence in the central nerve system of a single group of cells from which nerve impulses are discharged and transmitted by its axonic processes to the laryngeal, phrenic and intercostal nerve centers in the medulla oblongata and the spinal cord, and by which they in turn are excited to and coordinated in their activity. To this group of cells the term "inspiratory center" has been given.

Though the activity of the inspiratory center is normally regulated by nerve impulses ascending the vagus nerves from the lungs, nevertheless it is capable of stimulation in a more or less abnormal manner by the arrival of nerve impulses through other afferent nerves coming from different regions of the body.

The secondary activity in this reflex is a forcible expiration, or a diminution in the size of the thorax and the lungs, which has as a result a compression and expulsion of the previously stored volume of air. Though expiration is normally a passive process and accomplished by the recoil of the elastic forces of the thorax only, under the conditions characteristic of sneezing, these forces are reinforced by the coordinate contraction of various groups of muscles, among which, as representatives, may be mentioned the internal intercostals and the abdominal muscles.

The coordinate action of these groups of muscles likewise implies the coordinate activity of groups of nerve centers and their related nerves. Thus, the activity of the internal intercostals is called forth by the discharge of energy from nerve centers in the thoracic segments of the spinal cord and is transmitted by the intercostal nerves; the activity of the abdominal muscles is called forth by nerve energy discharged from the lower thoracic, and perhaps upper lumbar, segments, and is transmitted by the lower thoracic and the iliohypogastric nerves.

The coordinate contraction of the expiratory muscles implies a practically simultaneous discharge of nerve energy from each of the foregoing nerve centers; and this, in turn, necessitates the existence in the central nerve system of a single group of cells from which nerve impulses are discharged and transmitted by its axonic processes to the intercostal centers in the spinal cord, and by which they in turn are excited to and coordinated in their activity. To this group of cells the term "expiratory center" has been given.

As to the manner in which the expiratory center is stimulated, if at all, under normal conditions of respiration, there is not much definite information available. But as a forced expiration always involves a volitional effort or a discharge and transmission of nerve energy from the cerebrum to the expiratory center, it may be conceived that under the conditions of the respiratory apparatus peculiar to sneezing, the expiratory center is aroused to activity by the descent of nerve impulses from the cerebrum.

Just preceding and conditioning the forcible expiratory effort, the respiratory passage is shut off from the nasal cavities by a partition formed by the elevation of the palate, the advance of the posterior half arches, and the contraction of the superior constrictor of the pharynx. This cooperative muscle contraction results from the discharge of energy from the cells of origin of the spinal accessory nerves.

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At this moment the intrapulmonic air is compressed on all sides by the descent of the ribs, the result of the contraction of the internal intercostal muscles, and by the upward movement of the abdominal viscera, the result of the contraction of the abdominal muscles. With the rise of the intrapulmonic pressure, there comes a moment when the nasopharyngeal partition is forcibly separated, and the air is driven into and through the nasal chambers with a more or less complete dislodgment of the mucus.

The afferent portion of the nerve mechanism, by which the inspiratory reflex is occasioned, consists of fibers of the trigeminal nerve, the peripheral terminations of which are distributed to the nasal mucous membrane, and the central terminations related histologically and physiologically to the inspiratory center.

The stimulus adequate to the excitation of these peripheral nerve endings is a dilatation of nasal blood vessels and the discharge of clear, slightly viscid secretion, perhaps specific in character, from the glands embedded in some portion of the nasal mucous membrane. When this secretion is discharged and begins to trickle over the terminals of the nerve endings in certain regions, nerve impulses are developed which, transmitted to the inspiratory center, stimulate it and cause it suddenly to discharge energy to the spinal inspiratory centers and muscles. With this, the effective portion of the sneezing mechanism is excited and coordinated in activity.

Coincidently with the stimulation of the afferent nerve fibers of this reflex mechanism, there occurs simultaneously a stimulation of purely sensory nerves. The nerve impulses developed in them are transmitted to sensory areas in the cortex of the cerebrum, where they evoke sensations of a peculiar trickling or quivering character which contribute much to the pleasure of the sneeze, and at the same time lead to various muscle reactions and sounds of a more or less pronounced character.

THE NASAL PHASE

As stated in a previous paragraph, the stimulus adequate to the excitation of the sneezing mechanism is the production and discharge of a secretion from glands in the nasal mucous membrane. The production of this secretion is also a reflex act and involves a nerve mechanism consisting of afferent nerves, central cells, efferent nerves and their related responsive organs, glands and blood vessels. Collectively their physiologic action constitutes the nasal phase of sneezing.

The production of the stimulating secretion requires the cooperation of blood vessels and gland epithelium, both of which require for the manifestation of their activity the stimulating influence of nerve energy originating in the central nerve system and transmitted to them by the afferent nerves of the reflex mechanism.

The nerves distributed to these structures belong to the autonomic system, and therefore consist of two consecutively arranged and histologically related neurons known as preganglionic and postganglionic.

In a consideration of this mechanism it will be convenient to consider the postganglionic neurons first. The cell bodies of these neurons are found in, and compose in large part, the sphenopalatine ganglion. From these cells axonic processes pass forward to become histologically related to the walls of the blood vessels and the epithelium of the nasal glands, from which it may be inferred that the sphenopalatine cells are related to vasomotor and secretomotor phenomena. The sphenopalatine cells, however, do not possess spontaneity of action, but require for their excitation the arrival of nerve energy, originating in cells in the central nerve system and transmitted to them by their preganglionic axons. These cells, which constitute the central part of this reflex mechanism, are located in the gray matter beneath the floor of the fourth ventricle. The axonic processes to which they give rise pass forward and emerge from the medulla in the nerve of Wrisberg, of which they constitute a large part; they then pass into the sheath of the facial nerve; after a very short course they leave the facial nerve at the genu, and after that become the great petrosal nerve, the peripheral terminations of which arborize around the cells of the sphenopalatine ganglion.

There is thus established a pathway between the central nerve system and these local peripheral organs along which nerve impulses pass from the center to the periphery. That this is the case is shown by the results of experimentation; thus, if the great petrosal nerve in one of the higher mammals is divided and its peripheral end stimulated with induced electric currents, there promptly occurs a dilatation of the nasal blood vessels and a secretion from the nasal glands. Stimulation of the sphenopalatine ganglion has a similar result. From these facts it may be inferred that the nerve fibers composing the great petrosal nerve, as well as the cells from which they arise, are divisible into two groups, namely, vasodilatator and secretomotor. Any stimulation, therefore, of the central cells will be followed by vascular engorgement and the discharge of mucus.

The afferent portion of the mechanism is widely distributed, though it may be said to consist mainly of (1) cutaneous nerves, (2) nasal branches of the trigeminal, (3) visceral afferent nerves, and (4) nerves descending from the cerebrum.

The stimulation of certain cutaneous nerves, as is frequently the case when they are suddenly exposed to a low temperature or cooled by currents of air, will cause a dilatation of the nasal blood vessels and a discharge of mucus, which in a short time will stimulate afferent nerve endings and occasion a series of reflex spasmodic sneezes. This stimulation holds true for the ankle, neck and head areas of the skin. The impulses thus peripherally generated are transmitted to the central vasodilatator and secretmotor cells, and excite them to activity.

Stimulation of the trigeminal nerve endings, chiefly in the nose, perhaps elsewhere, will cause the same vascular and secretory conditions, as is well known. The stimuli capable of exciting these nerve endings may be mechanical and chemical, as well as organic, emanations, of a more or less unknown nature, from animals and plants. Here, again, the primary effect of these stimuli is the production of the nasal mucus.

Stimulation of other sensor nerve endings, of the glossopharyngeal, the vagus, etc., has been observed to cause the same nasal phenomena, followed by more or less pronounced sneezing.

PSYCHIC STIMULATION

Stimulation of vasomotor, secretomotor and visceromotor centers in the medulla oblongata and spinal cord, by nerve impulses descending from the cerebrum in consequence of psychic states of an affective or

emotional character, is a well attested fact. It is only necessary to recall the effects of psychic states on the nerve centers regulating the vascular and secretory phenomena preceding the discharge of saliva and gastric juice; and on the nerve centers regulating the vasodilatator and the secretomotor phenomena of the sexual organs. Paralleling these effects are the effects of the psychic states on the vasodilatator and secretomotor phenomena of the nasal organs. It has, moreover, been frequently observed that the nasal and sexual phenomena often coexist, the two not standing, however, in the relation of cause and effect but as results of the same psychic state.

PATHOLOGIC CONDITIONS

In this presentation the attention has been limited to the consideration of the normal or physiologic condition. This, if properly conceived, may assist in the interpretation of pathologic conditions. It is quite apparent that pathologic conditions might arise from an alteration in the way of an increase in the irritability of the afferent portion of the mechanism of the nasal phase of the reflex. Local pathologic states frequently so exalt the irritability of the nerve endings that a slight additional stimulation develops a greater number of nerve impulses than would otherwise be the case. As a result, the associated central cells are more profoundly stimulated and cause by their greater discharge of energy more pronounced peripheral effects. It not infrequently happens, also, that the nerve impulses thus developed are so numerous that they overflow their customary channels and stimulate vasodilatator, secretomotor and visceromotor centers in different levels of the medulla oblongata and the spinal cord, causing, in addition, the development of pathologic phenomena in the respiratory, the circulatory and other organs as well. Instability of the central mechanism, either in itself or as an expression of a more general nerve cell instability, the result of heredity or of dietetic or sexual excesses or other conditions, may lead to similar results.

NASAL HYDRORRHEA *

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The rare disease, called by Bosworth nasal hydrorrhea, by others rhinedema or edematous rhinitis, has been given little attention in the literature of our specialty. There is no description of it in the books written by Ingalls, Coakley, Watson Williams, Packard, G yson, Gile or Reik. Gleason writes of it very briefly. In the last edition of his book, he describes two types, the inflammatory and the noninflammatory. Coolidge writes of it as would an author who had had no opportunity to study cases. The same statement would apply to Ballenger's work. Price Brown describes one case. Shurley's description is very brief. D. Braden Kyle, in the early edition of his book, says he can find authentic records of only twenty-seven cases. Grayson[1] describes it, although his title is, "The Nasal Phenomena of Neurasthenia." Phillips gives less than half a page to a description of this disease, and much of that space is taken up with the chemistry of the discharge. There are numerous references to it in the *Index Medicus*, but careful reading of the articles reveals that everything from hay-fever to the nervous degeneration of advanced diabetes has been described as nasal hydrorrhea.

Because so little attention has been given it, cases are being overlooked by good men, and this is sufficient reason for presenting the topic to this section.

We do not know the cause of the disease. Curtis has found it associated with sexual perversion in young adults, but this is not a factor in many cases. I can find no record of postmortem examinations of the pathologic condition. The cases described by Bosworth, in which postmortems were performed, were undoubtedly unrecognized cases of sinus suppuration. Lacking the exact knowledge of its pathology, we can best define nasal hydrorrhea as an obscure nervous disease, the chief symptoms of which are nasal. There is some relation between this disease and that very obscure nervous affliction known as angioneurotic edema. The phenomena of the two diseases are similar. In three of my patients, both conditions were present. The disease is most common among younger men and women of sedentary habits. There are no known external exciting causes such as produce hay-fever, or as in the edema produced in certain persons by the emanations of horses, cats or other animals. The local pathologic condition is a dropsy. The connective tissue interspaces of the turbinated bodies are filled with serum. If surgical intervention is necessary in the typical cases, the fluid discharged is only slightly blood tinged instead of showing evidence of the free hemorrhage resulting when a turbinate is injured.

The characteristic symptoms of nasal hydrorrhea are a sense of extreme irritation in the nose, followed by sneezing and a very profuse watery discharge from both nostrils. The discharge varies in amount from an ounce to a half pint in twenty-four hours. The fluid is alkaline and contains small amounts of sodium chlorid and traces of phosphates. The presence of mucin differentiates it from the cerebrospinal fluid discharged from the nose after injuries.

In some patients, the discharge persists throughout the day. In others it is periodical, flowing for hours and then ceasing until the next day. Cold winds, dampness and dust aggravate the symptoms. After some months of this annoying flow, polypi appear. Their removal has only a mechanical effect in opening the nostril, as the other symptoms are not modified. They soon recur.

A direct examination of the nose reveals that the mucosa is pale bluish, sometimes translucent. The swollen turbinates entirely fill the nasal cavity. Persistent rubbing with cotton pledgets soaked with an epinephrin and cocain solution will sometimes enable one to shrink the tissues temporarily until it can be seen that no hypertrophy is present. Usually the entire length of the turbinated body is affected. In some cases the anterior portion, in others the posterior portion is more edematous. The disease may begin at any season of the year, and last for months or years.

We have a distinct clinical picture of a rare disease, the symptoms of which resemble hay-fever, but which is not hay-fever. One reason for the opinion that the disease is nervous in its origin and that the nasal symptoms are significant only of lesions in the nerve

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* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Grayson: The Nasal Phenomena of Neurasthenia, Laryngoscope, December, 1910.

centers is the marked mental depression, amounting almost to melancholia, from which these patients suffer. Another reason is, I think, from my experience in the cases I have treated, that any unusual mental or emotional strain greatly aggravates the nasal symptoms. A final reason for the belief in the essentially nervous origin of the disease is the absolute failure of local treatment to give relief, and the success of tonic and hygienic measures. There is no evidence to show that the disease is one of anaphylaxis, or one due to disorders of the endocrine glands.

REPORT OF CASES

Case 1.—My first patient, treated thirty-three years ago, was a merchant, aged 30. While in his store in the mornings, between 9 and 10 o'clock, he would feel a sudden occlusion of the nostrils, and before he could get a handkerchief out of his pocket the serum would be dripping from his nose. The flow would continue for about six hours; then he would be comfortable until the next morning, when it would recur. During the attack the lower eyelids would be black from venous congestion. These daily periods of suffering would persist for six weeks, and then he would have several months of ease, only to suffer again in the former way if worried by business responsibilities or if overworked. He finally made a complete recovery. Neither polypi nor sinus suppuration developed in this case. He is still living and in good health.

Case 2.—Another typical case of nasal hydrorrhea was that of a maiden lady, aged 40. She had suffered for months before I saw her. Polypi had already developed in this case. Their removal gave little relief, as the edematous turbinates promptly filled the space left by their removal. The nasal stenosis and constant free discharge greatly interfered with her rest, and her general condition was bad. Under tonic and hygienic treatment, she improved for a time. She was passing through the menopause, and at every recurrence of menstruation, usually once in three months, there was a return of the acute nasal distress. This exacerbation would last for varying periods, and then would come an interval of comfort. Local treatment never had any notable effect in relieving her. Something had to be done to the nose for the effect in relieving the woman's mental depression, but all the real good accomplished was effected by the use of hygienic measures. Ten years after beginning treatment, she still has occasional attacks.

Case 3.—Another patient, a physician's wife, had been treated for several months by one of my colleagues for hypertrophic rhinitis. There was no evidence of inflammation in the nose, and the very profuse discharge revealed the true nature of the case. Sprays of a weak solution of epinephrin gave some relief to his patient. Vigorous outdoor exercise and cold douches to the spine effected a cure.

Case 4.—A case with an interesting sequel is that of E. T. C., an attorney, who was under observation for three years. He also was treated for hypertrophic rhinitis before I saw him. There were polypi present in this case, when I first examined him, and the anterior end of the left middle turbinate bone was dead. Removal of the polypi and of the diseased bone gave some relief, but I was never able to prevent recurring attacks. The patient was a man of good habits and otherwise healthy. His manner of living was in accord with the best teachings of modern medicine, except that he was overworked. Excessive mental exertion seemed to be the most common cause of an acute attack. Sometimes the preparation of an important case for trial would bring on the acute condition, and the nasal obstruction and the loss of sleep would so impair his mental progress that he would be unable to try the case.

At other times the strain of a court trial would be the exciting factor, and he would come to my office with open mouth, serum dripping from his nose, eyes red from loss of sleep, throat congested from the mouth breathing and, altogether, would present a pitiable object of human suffering. Even in his quiescent periods, the membrane in the nose was always pale and bluish. In December, 1910, while visiting in Chicago, he had an attack of angioneurotic edema involving the whole face except the nose. He was confined to his bed for a week with this illness. Since that time there has been no recurrence of edema. The occurrence of an attack of angioneurotic edema in a typical case is another evidence of the essentially nervous nature of the disease. He later developed a frontal sinusitis and was operated on by one of my colleagues.

Case 5.—The nervous disturbances attending the first pregnancy in a young married woman seemed to be the exciting factor in this case. So extreme was the edema that the dropsical anterior ends of the inferior turbinates could be seen at the nostrils. No amount of epinephrin and cocain would shrink the tissues so that any air could be inhaled through the nostrils. The patient could not lie down to sleep without causing dyspnea. Her mental condition was that of beginning melancholia. Prompt relief was imperative; so I resorted to operation rather than wait for the slower results of hygienic treatment. The anterior ends of the inferior and middle turbinates in the right nostril were removed. A few days later the anterior end of the inferior turbinate in the left nostril was snared off. This gave sufficient breathing room to let her lie down and, with tonic treatment, improvement was rapid. This patient had a slight recurrence in the early weeks of a second pregnancy.

Case 6.—In the case of a young man seen in December, 1918, the nasal dropsy extended to the palate, producing suffocative symptoms. He is syphilitic, and the anemia due to that disease aggravates the attacks.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of nasal hydrorrhea must be made from hay-fever and from the escape of cerebrospinal fluid from the nose. Attacks of nasal hydrorrhea occur at any season of the year and are not excited by pollen. The discharge of nasal hydrorrhea contains mucin and no sugar. The cerebrospinal fluid contains no mucin and precipitates Fehling's solution.

Case 7.—One unusual case I saw in 1910 could easily have been mistaken for unilateral hydrorrhea. All the partition cell walls in the right ethmoid had been destroyed. The cavity was lined with a membrane secreting a clear fluid. There was a small opening in the cavity above the middle turbinate. When the patient stooped, a half ounce of fluid would gush from the nostril. Free opening of the cystlike cavity cured her.

TREATMENT

In the mild cases, sprays of epinephrin solution, one part of epinephrin to 7,000 of saturated solution of boric acid, have sometimes given relief. In the severer cases, the epinephrin preparations do not secure even temporary contraction of the vessels in the turbinated bodies. Cocain must be applied only by the physician himself, and with extreme caution. The patient's mental condition is such that he will use anything to open the occluded nostrils and check the discharge, and the drug habit is quickly formed. A spray solution that has given a remarkably prompt relief in acute inflammation of the nose would seem to be useful in nasal hydrorrhea. The formula is given herewith:

FORMULA OF SPRAY SOLUTION*

Atropin (alkaloid)	gr. ss
Epinephrin	gr. i
Menthol	gtt. xxiv
Camphor	gtt. xii
Oil of sweet almond	℥ ii
Liquid petrolatum	℥ vi

Mix and dissolve.

* As this solution is one the druggist cannot make without special instructions, the method of dissolving the epinephrin in oil is given. Triturate the menthol, camphor, epinephrin and atropin (alkaloid) in a mortar until they liquefy. Continue trituration for some time after liquefaction "until the mortar rings." Add the mixed oil of sweet almonds and liquid petrolatum very slowly, with constant stirring. Bottle and let stand for twenty-four hours with occasional shaking. Filter through a dry funnel into a dry bottle, and the preparation is ready for use.

Operative measures, except for the removal of polypi, should be used with extreme caution. A real physician does not amputate a dropsical leg, but seeks the cause of the dropsy and treats the causal condition. A dropsical turbinate should also be treated conservatively, and the cure of the disease should be our aim.

As most of these patients are women or men of sedentary habits, active exercise in the open air is the first essential treatment. If this exercise is vigorous enough to produce free perspiration, the result will be much better.

The exercise should be followed by a hot, cleansing shower bath, ending with a cold shower down the spine. In some very delicate women, massage must be given for a time to tone up the flabby muscles so that exercise can be taken. The bowels and kidneys must be kept active with salines and natural aperient waters. If the open air exercise is taken, the appetite and nutrition will be restored without medication. Nerve tonics help in the early cases.

The only positive claim for a cure by medication which I can find in medical literature is that of Lake. He gives from 30 to 40 grains of calcium lactate daily.

RECAPITULATION

There is a rare disease with edema of the turbinated bodies as its most characteristic feature. This edema is not secondary to inflammations in the nose or accessory sinuses. The degenerative changes in the nasal tissues are result and not a cause of edema.

The disease is not caused by climatic conditions or seasonal changes. It is chronic in its course, often lasting, with occasional intermissions, for years.

The nasal edema is probably a symptom of a nervous disease.

ASTHMA AS A NASAL REFLEX*

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The consideration of asthma as a reflex from nasal disease has been a matter of interest to all of us for many years, primarily because of clinical results that are sometimes obtained by its treatment, and also because of the scientific interest we have in its problems.

This chapter of medicine was an enigma to me until the past few years: none of the observations published seemed to explain the mechanism of the disease.[1] Now, the question seems to me to present possibilities, if not of solution, certainly of interesting speculation. These ideas came to me in the course of my observations on the "lower half" headache[2] produced in sphenoidal and nasal ganglion lesions.

To my mind, the explanation of the pain produced from the nasal (sphenopalatine-Meckel's) ganglion, necessitates the assumption of functions on the part of the sympathetic nervous system which cannot be proved, according to the conclusions of the foremost men who have worked in this field—Langley,[3] Gaskell,[4] Ranson,[5] and others.[6]

The question of whether or not asthma is a clinical entity is much too large to be considered in such a presentation as this, as is also the question of the sympathetic nervous system, except for the special points I want to mention.

In my explanation of the "lower-half" headache, it must be assumed that in man the sympathetic nervous system has the power of transmitting, under pathologic conditions, afferent pain impulses from the nasal ganglion into the neck and shoulder, etc., though the entire argument of anatomists and physiologists at present is against this assumption. Some of the writers speak of sensory fibers in the sympathetic nervous system. These are stated definitely[7] to be dendrites of neurons, which have their cell-bodies in the posterior root ganglions; and it is asserted that they are transmitted by the sympathetic trunk merely as a pathway. Buch[8] seems to have proved that the sympathetic nervous system, in some way, is capable of transmitting afferent pain impulses.

In my explanation of asthma as a nasal reflex, it must be assumed that the sympathetic nervous system is also capable of transmitting afferent impulses which are not painful sensory ones, because many patients with nasal asthma do not have any pain of any kind. If this be true, the explanation of asthma as a nasal reflex becomes possible.

It is known that the sympathetic nervous system in the nose is derived from the nasal ganglion. This receives its sympathetic nerve supply from the vidian nerve; the great deep petrosal; the carotid plexus; the superior cervical ganglion, etc. If, then, the sympathetic nervous system has the power of transmitting afferent impulses, the impulse may readily be traced from the inflamed nose by way of the nasal ganglion, the vidian nerve, the carotid plexus, to the sympathetic trunk in the neck to the lower cervical and first thoracic ganglions, which are often united, and frequently spoken of as the stellate ganglion.

Through this ganglion pass the fibers from the second, third and fourth thoracic nerves that turn downward, being accelerator fibers for the heart, and vasomotor fibers for the lung.

In what way the impulse is transferred from the cervical sympathetic to the cardio-accelerator and pulmonary vasomotor fibers is not to be speculated on at present; nor is it possible to speculate as to which ganglion serves as the relay or transfer station for the impulse. Langley[9] states that the cardio-accelerator fibers arise in the second, third and fourth thoracic nerves, and pass through or to, the first thoracic or inferior cervical ganglion, thence to the heart. Ranson states that these fibers go to the inferior middle and superior cervical ganglions, and thence to the heart. Langley states that the vasomotor fibers for the

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1. One of the best statements of the questions concerned in it is by H. L. Lack: (Diseases of the Nose, New York, Longmans, Green & Co., 1905). He, too, is of the opinion that nothing in the literature bears on the nasal mechanism of the disease.

2. "Lower-half" headache is a convenient designation for pain in and about the eye, the maxilla and the teeth, passing back to the temple, ear, mastoid, occiput, neck and shoulder. For further detail see Sluder, Greenfield: Headaches and Eye Disorders of Nasal Origin, St. Louis, Mosby & Company, 1918.

3. Langley, in Schaffer: Text Book of Physiology 2.

4. Gaskell, W. H.: The Involuntary Nervous System, New York, Longmans, Green & Co., 1916.

5. Ranson: An Introduction to a Series of Studies on the Sympathetic Nervous System, J. Comp. Neurol. **29**: 305, 1916.

6. The literature of the sympathetic (involuntary) nervous system is somewhat difficult to read because of the nomenclature, which is still in considerable confusion. There are three separate nomenclatures, and there are also three types of observers, namely, the anatomists, the physiologists and the neurologists. I use the term sympathetic in the older sense, as including the entire involuntary nervous system.

7. Herrick, C. J.: An Introduction to Neurology, Philadelphia, J. B. Saunders Company, 1916.

8. Buch: Die Sensibilitätsverhältnisse der Symp. d. N. Vagus mit besonderer Berücksich. i. Schmerzemif. i. Berliche d. Bauch. Arch. Physiol., 1901, pp. 197-221.

lung arise in the third to seventh thoracic nerves, and pass up to the inferior cervical ganglion, and then to the lung. Ranson does not mention the pathway of these fibers. It would seem that the relay station for the asthma reflex must be in the cervical sympathetic ganglions, whereas the pain in the neck and shoulder would seem to be relayed in the posterior root ganglions; and it would appear that the asthma impulse must be inhibitory to the vasomotor fibers.

EXPERIMENTAL AND CLINICAL DATA

In a perusal of the literature of the sympathetic nervous system, one is impressed by several difficulties in utilizing for clinical purposes the information found. One fact appears very soon, to wit, almost none of the observations have been made on man. Another is that the animals studied vary considerably, giving rise to the feeling that man is probably different from any of the lower animals. Kuntz[9] observed the development of the cervical sympathetic ganglions of the fish, amphibia, turtle, chick and pig. He found that the nasal ganglion developed from cells which had their origins in the geniculate and gasserian ganglions, and advanced along the great superficial petrosal and maxillary nerves, respectively. There were differences in different animals.

In thinking of afferent qualities in the sympathetic nervous system, the sensory origin of some of its cells comes to mind.

None of this argument is other than speculation, based on some anatomic data in connection with the sympathetic nervous system. The most generous thought of it is that it may possibly be considered as a theory of the nasal asthma mechanism.

The clinical side of the question, however, is a set of simple facts. All of us have from time to time read of, and possibly observed, strange phenomena in connection with the nose. We read also of the general application of cocain and of many procedures in the nose, curing or helping asthma. My personal experience along these lines has always been disappointing. Removal of polyps, for instance, at my hands, has never influenced asthma; but I know well that others have been more fortunate. This is true also of resection of the septum, and the treatment of the anterior paranasal cells.

I have, however, been much more fortunate in the treatment of the posterior part of the nasal cavity. Here, to my mind, the question is one of whether or not the condition is due to irritation of the sympathetic nervous system, either in the nasal ganglion or in the course of the vidian nerve as it passes forward through the floor of the sphenoidal sinus.

If this be correct, I can understand how in some cases the sympathetic fibers, as they course from the nasal ganglion into the nose in some specially irritated states, might be the starting point for the reflex, instead of a point further back, to wit, the ganglion or the vidian. Practically, however, this has not been my experience.

If the asthma reflex may be best controlled from the nasal ganglion or the sphenoid sinus, they should also be the places from which the reflex may at least sometimes be started experimentally, or accidentally. This has also been my experience, as the following will indicate:

9. Kuntz: Further Studies on the Development of the Cranial Sympathetic Ganglia, J. Comp. Neurol. 24.

REPORT OF CASES

CASE 1.—The application of horse serum to any part of the patient's nose in an instance of horse asthma, was very irritating, producing at once sneezing, swelling and serous secretion; but the asthmatic attack was produced only from the nasal ganglion region. A subcutaneous injection of sufficient horse serum brought on asthma.

CASE 2.—In a case of severe asthma, with upper and middle meatus polyps, the middle turbinate and middle meatus polyps had been removed with the anterior ethmoid cells on both sides. The procedure had, of course, required a considerable cocainization; but neither the surgery nor the cocainization had at all influenced the asthma. Whether the upper meatus lesion was recognizable by the rhinologist at that time, is unknown to me. The case was clearly recognizable when the patient consulted me, one year later. I at once performed the nasal ganglion experiment of cocainization, trying to help it. A drop of 90 per cent. solution was applied to the sphenopalatine foramen, and at once relieved the asthma. The patient stated that that spot had never been touched before. He did not know I had used cocain, or where I put it. I opened the postethmoidal and sphenoidal cells later. The sphenoid was full of polyps. The bone lesion is not controlled. Polyps reform, and he still has asthma. An autogenous vaccine of staphylococci has helped the bone lesion, and the asthma is much better. A coryza reestablishes all of his troubles, polyps and asthma. This case is of twenty years' standing. Epinephrin administered subcutaneously stops the asthma.

CASE 3.—In an instance of long standing and great severity, in every way similar to the one preceding, cocain applied to the nasal ganglion was found to have a reversed action. Instead of helping, it at once made the attack violent. This is a rare reaction, seen sometimes in the treatment of nasal ganglion neuralgia.[9] The patient, in this instance, has been greatly helped by the postethmoidal sphenoidal operation.

CASE 4.—In another case of five years' duration, with lower-half headache, the reflex and pain were controlled from the nasal ganglion. I injected it twice with 95 per cent. alcohol containing 5 per cent. phenol (carbolic acid). The pain is stopped; a very slight degree of asthma returns from coryzas. In this case the headache and asthma are brought on at will by application of irritants to the sphenopalatine foramen, as, for example, by a 2 to 50 per cent. silver nitrate solution. Other areas in the nose do not respond to this experiment.

CASE 5.—A 2 per cent. menthol solution in oil produced a severe attack of asthma in a case of severe sphenoidal headache (after the cells had been opened five years) in an effort to find an intrasphenoidal application which would be helpful and lasting in effect. The sphenoid had been filled with solutions of iodin, sodium salicylate, oil of wintergreen, and phenol. The menthol alone produced asthma. Coryzas, in this case, produced lower-half headache, often severe, but not asthma.

CASE 6.—In a case of autumnal hay-fever, with asthma, the intrasphenoidal application of ragweed pollen extract, in midwinter (ground covered by 3 inches of snow) produced asthma. The intrasphenoidal application of cocain during the attack of hay-fever stops the asthma.

In young patients, postethmoidal-sphenoidal lesions producing asthma are often accompanied by fever. I have thought, in trying to explain the fever, that they were probably accompanied by bronchitis; but I am not sure of this, because I never see the children in these attacks—they are always brought to me after the attack.

CASE 7.—In a child, aged 6, very intelligently nursed, tachycardia is always present and lasts for about two weeks after the asthmatic attack is over, suggesting that the tachycardia is, in this case, a reflex from the nose, and of the above-detailed mechanism. The attacks are always accompanied by fever.

CASE 8.—In another case, every coryza that affects the olfactory fissure produces asthma, for the time, of the coryza.

INFLAMMATORY CASES

In some of my cases, intelligent effort to prove some sensitization to proteins failed to reveal it. These cases were apparently of local inflammatory origin. Some were acute, and some were chronic hyperplasia, without bacteria that could be grown by our present laboratory methods. Others, such as the hay-fever group, are clearly sensitive.

Clinically, the local inflammatory cases depend for their relief on the control of the local lesion. Aside from the indicated surgery, an autogenous vaccine, when bacteria can be grown from the lesion, is sometimes helpful, making the interval between coryzas longer. The cure of the case depends on the cure of the local lesion. Inasmuch, however, as no preventive for coryzas is known at present, the acute inflammatory action so produced in that district is apt to rekindle the trouble. This has been my experience. The patients may be much relieved, just as headaches from such lesions may be very greatly relieved, but there are almost sure to be recurrences, just as a coryza in that district can always make headache, because the nerves remain in their vulnerable positions, and are affected by the inflammatory action.

Thought of the sympathetic nervous system in relation to asthma, as here detailed, raises the question of why there are not more cases of this kind; or of why not all patients suffering from nasal ganglion or vidian nerve lesions have asthma; or of why some have asthma only, and no other manifestation, from a most pronounced lesion of these parts. There does not seem to me to be any direct answer.

Speculation, however, continues with the thought that there may be anatomic variations sometimes which explain some cases; for example, the (normal) fibers of the cervical sympathetic nervous system arise in the thoracic nerves and pass up to the superior cervical ganglion (preganglionic neurons), and from this ganglion proceed (postganglionic neurons) to or through the nasal ganglion. Should, however, these arrangements be changed and the relay station be the lower cervical or first thoracic ganglion, there are met the vasomotor fibers for the lung and accelerator fibers for the heart. In what way the reflex is then transferred is beyond speculation.

SENSITIZATION

In this immediate association of thoughts comes also the question of sensitization. Some nasal ganglions and vidian trunks are sensitive to things that do not affect others, as, for example, Case 4, in which the patient was sensitive to silver nitrate solution locally, and in Case 5, in which the patient had a vidian trunk sensitive to menthol. In both of these cases asthma is produced by these irritants. Probably for all hay-fever patients, the ganglion is sensitive to locally applied pollen extract; but if the anatomic arrangement of the sympathetic nervous system is normal, they have hay-fever without asthma. Should, however, the lower cervical or first thoracic ganglion be the relay station, that patient may develop the asthma. (The questions of sensitization in general cannot be considered here.) That there are anatomic variations in the sympathetic nervous system seems certain to me from my observations of the nasal ganglion. Sometimes the pupil dilates from cocainization of it, and once I saw the eyelid droop from it; and I have seen the cocainization of the ganglion of one side stop pain on the opposite side.[10]

NASAL OR SPHENOPALATINE NEUROSIS*

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CHICAGO

In 1914 I presented a paper on the "Injection of the Sphenopalatine Ganglion in some of the Commoner Diseases of the Nose[1]." I was very much surprised to learn that the average rhinologist did not interest himself in this particular phase of our specialty. In the past few years, however, considerable interest has been taken in the subject, although there is not, even now, attributed to it the importance which I consider it deserves.

To understand the etiology of these various neuroses, a fairly clear conception is necessary of the anatomic relationship of the ganglion to the various accessory sinuses of the nose; therefore I will review the anatomy of this region rather extensively. The sphenopalatine, Meckel's or nasal ganglion is deeply placed in the sphenomaxillary fossa, close to the sphenopalatine foramen. It is triangular and is situated immediately below the superior maxillary nerve, just as it passes the fossa. Its sensory root is derived from the superior maxillary nerve, through its two sphenopalatine branches. Its motor root is derived from the facial, through the large superficial petrosal, nerve and the large, deep petrosal nerve. These last two join before their entrance into the ganglion to form the vidian nerve; its sympathetic root from the carotid plexus.

The branches of distribution are in four groups: ascending, which passes to the orbit; descending, to the palate; internal, to the nose, and posterior, to the nasal pharynx (Gray). The ascending branches supply the mucous membrane of the postethmoidal and sphenoidal sinuses. The descending branches are distributed to the roof of the mouth, soft palate, tonsil and lining membrane of the nose. The internal branch is distributed to the septum and outer wall of the nasal fossa, and to the mucous membrane behind the incisor teeth. The posterior branch is distributed to the upper part of the pharynx and to the region behind the eustachian tube.

As can readily be seen from the wide distribution, there are numerous points which may be irritated and cause symptoms, either locally or reflexly at some distant point. Nevertheless, owing to the great area of the nasal mucosa, including the lining of the nasal accessory sinuses, to the fact that the mucous membrane is brought into contact with various irritating substances by breathing and to the further fact that the sinuses are often the seat of suppurative processes, we must look here for most of the causes that produce symptoms of nasal ganglion neurosis.

Most textbooks state that the ganglion lies in the upper portion of the sphenomaxillary fossa, but does

10. An extensive interesting historical résumé of the observations on asthma is to be found in Brown, O. H.: Asthma, St. Louis, C. V. Mosby Company, 1917.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Pollock, H. L.: Injection of the Sphenopalatine Ganglion in Some of the Commoner Diseases of the Nose, Illinois M. J. 27 (May) 1915.

not explain its relation to the various accessory sinuses which surround or are in intimate contact with it. To understand some of the etiologic factors causing neuroses of this ganglion, it is necessary to study the relation of the ganglion to the accessory nasal cells. I quote from Sluder:

Relation of the Nasal Ganglion to the Wall of the Paranasal Cells.—When the upper boundary of the fossa is made entirely of the sphenoid sinus, the ganglion lies in close relation to the sphenoidal sinus; when the upper boundary of the fossa is made by the sphenoid sinus in its posterior half, and by the posterior ethmoidal the anterior half, the ganglion lies in close relation to both. When the sphenoid sinus is prolonged downward and forward, the ganglion will lie in close relation to it, in front. When the sphenoid is prolonged downward into the pterygoid process, the ganglion will then lie posteriorly in close relation to the sphenoidal sinus. Anteriorly, the fossa is formed by the wall of the maxillary sinus, but the ganglion can never lie in close relationship to this wall because of the pad formed by the arteria-palatine descendens and the arteria-spheno-palatina with their accompanying veins and the surrounding connective tissue.

Relation of the Nasal Ganglion to the Lateral Wall of the Nose.—The sphenopalatine foramen is accurately placed at a point just posterior to, and immediately above, the posterior tip of the middle turbinate. The ganglion usually lies close to the plane of this foramen. The ganglion does not, however, always show the same relation to the foramen. I have found it as close as one-half millimeter from the general membrane of the nose, and as far as nine millimeters.

Judging from this close relationship of the ganglion to the accessory sinuses, one cannot but believe that an inflammation or suppuration in these sinuses must at times involve the ganglion itself, and give rise to the neurosis which we so often find.

Clinically, we divide the neuroses into two great classes; namely, the neuralgic and the sympathetic (Sluder)[2]. When a patient presents a clinical picture of a ganglion neurosis, one must attempt to ascertain the underlying pathology and correct it before attacking the ganglion itself.

The neuralgic syndrome consists of pain, intense and excruciating in character (in some, cases of milder variety), radiating to any and all points supplied by the branches of the ganglion. The typical location of the pain is over the root of the nose, in and about the eyes, over the frontal region, into the pharynx and tonsil region, in and around the ear, posterior to the mastoid, into the occiput, to the neck, the shoulder, the arm and, at times, even to the fingers. The most severe and constant pain seems to concentrate at a point about 6 mm. back of the mastoid. Not all patients present this typical picture, as usually only one or more of the named are involved; but I have seen a few cases in which all of them were affected at the same time. In practically all of these types of cases, the pain just posterior to the tip of the mastoid is present.

When a patient presents this clinical picture, the diagnosis is simple. All local points of irritation or inflammation must be searched for and corrected before an attempt is made to attack the ganglion itself. By these points I mean the teeth, gums, deflected septum or spurs, and all sinus diseases, either suppurative or nonsuppurative.

I have described the sympathetic syndrome before[3]. The condition comes on at any time of the year, is irregular in its time of appearance, duration and severity, and is in no way associated with the ripening of the various pollens, to the inhalation of which hayfever has been ascribed. On the contrary, those of my patients who have had these symptoms for a number of years inform me that the attacks scarcely ever occur during August or September, and that if they do, the severity of the attack is lessened.

The paroxysms are often brought about by contact with or inhalation of a specific kind of perfume, a particular flower, the odor of various animals, a slight draft of air, or the inhalation of ordinary dust; or they may come on apparently spontaneously. These paroxysms usually begin just on arising, with attacks of sneezing. The patient sneezes from five to fifty times, and the attack is followed immediately by a profuse watery discharge from the nose. At the same time there is a reddening of the mucous membrane of the eyes, accompanied by profuse lacrimation. The nose becomes blocked, and breathing is naturally difficult. These symptoms may be of short duration, lasting only an hour or so, or they may continue for six or eight hours, and then suddenly abate, only to reappear on succeeding days, or when the patient is again brought into contact with the specific irritant. Some of these acute attacks may continue for a week or ten days, and some, only a day. The appearance of the nose between attacks, is usually normal except, possibly, for a slight paleness of the mucous membrane. During the attacks, however, the turbinates are swollen, soft, pale and edematous, and have a boggy appearance. This is especially true of the inferior and, to a lesser degree, of the middle turbinate. The mucous membrane of the septum is also pale. The eyes are red, the conjunctiva is injected, and at times there is an accompanying itching.

The secretion is thin, watery and acrid. After a few days of the attack, the upper lip becomes irritated and excoriated from the constant clearing and blowing of the nose, and from the acrid reaction of the secretions. Even the entire tip of the nose may become red and swollen from the same cause.

Just why some of these cases present symptoms of the neuralgic and some of the sympathetic type is difficult to explain. We know, however, that other ganglion present the same phenomena. The lenticular ganglion, for instance, when inflamed, may have its sensory cells or its motor cells affected. In the one case we have pain, or perhaps herpes oticus, and in the other we may have a facial paralysis as first described by J. Ramsay Hunt[4].

The prognosis of these neurosis is always bad if left alone. When proper treatment has been resorted to, the prognosis is naturally improved; but at this point I desire to state emphatically that the brilliant results which we desire or ought to expect in the neuralgic type are not often achieved. When perchance we do succeed in stopping these severe pains, if only in a small percentage of cases, the results certainly justify the efforts in this direction.

That we secure temporary relief, say, for a few months, can readily be explained by the work done by Otto May[5] on the alcoholic injection into various nerves of animals. He has shown that alcoholic injections do not destroy completely the nerve fibers and

2. Sluder, Greenfield: Concerning Some Headaches and Eye Disorders of Nasal Origin, St. Louis, C. V. Mosby Company, 1918.
3. Pollock, H. L.: Hyperesthetic Ethmoiditis, read before the Illinois Medical Society, 1919.
4. Hunt, J. R.: J. Nerv. & Ment. Dis., 1906.
5. May, Otto: Functional and Histologic Effects of Intraneural and Intraganglionic Injections of Alcohol, Brit. M. J. 2 (Aug. 31) 1912.

nerve cells, as they recover their function a few months after the injection. The alcoholic injection does, however, inhibit the function of the nerves for that length of time and, as a consequence, we obtain during this period, a cessation of the symptoms produced by an inflamed nerve or ganglion. We do not often penetrate the ganglion itself, but only bathe the surface with the alcohol which we inject into the spheno-maxillary fossa. We obtain a much larger percentage of cases of improvement in the sympathetic neurosis than in the neuralgic type. In a large percentage of these sympathetic affections we obtain complete cure and, in practically every case, an improvement in the symptoms.

TREATMENT

As I stated before, all pathologic conditions of the upper respiratory tract must be corrected; and these conditions include those affecting tonsils, teeth, gums accessory sinus, deflection and spurs on septum.

We have had one case referred to us in which a mastoidectomy had been performed to relieve the severe pain located just back of the mastoid proper. No relief was obtained; the diagnosis had been made of a primary mastoiditis, but at the operation no pathologic condition was found. In taking a roentgenogram of the teeth, we discovered an upper impacted third molar, the removal of which cleared up the condition completely.

I now have a young woman under treatment who developed a typical neuralgic syndrome, following an attack of influenza. Hers was one of the most aggravated cases I have ever seen. She had her ethmoids completely extenerated, and the sphenoids opened, without relief. An otologist diagnosed primary mastoiditis and performed a simple mastoid operation, but found no pathologic condition. I injected the ganglion with a 2 per cent. phenol alcohol solution, and it lessened her pain decidedly, although it did not destroy it completely, so that now no narcotics are necessary, whereas, formerly, large doses were required to give her some relief.

One of the most valuable prognostic points is the application of from 20 to 90 per cent. cocain solution in the region of the sphenopalatine foramen. If this stops or ameliorates the pain to a great degree we can be reasonably positive that the injection of the ganglion will give good results.

The technic is simple. I first cocainize the posterior end of the middle turbinate and the wall just behind it, with a 20 per cent. solution of cocain. Then a sword needle of Sluder is employed, a straight needle 5¼ inches long with a cross bar near the end. The needle is introduced from the septal side of the nose. I transfix the posterior end of the middle turbinate and press the needle gently through the turbinate until the posterior wall is felt. The needle is then pushed upward, outward and backward through the bony wall which is the anterior boundary of the sphenomaxillary fossa, in which the ganglion lies surrounded by connective tissue. Usually, by tactile sense, one feels the needle slip into the cavity. The ganglion is about 0.66 cm. back of the wall. A 5 c.c. Lüer syringe, filled with a 2 per cent. solution of phenol (carbolic acid) in alcohol is then attached to the needle, and from 5 to 15 minims are injected. If the needle succeeds in penetrating the ganglion, the patient complains of excruciating pain in the eye, ear, top and back of the head and in the shoulder, but should the phenol alcohol solution merely surround the ganglion, the pain will be less severe.

The pain usually lasts anywhere from a few minutes to twenty-four or forty-eight hours, and it is in cases in which the pain is prolonged after injection that the end-results to the patient are most gratifying. The number of injections necessary is variable. If the ganglion is penetrated the first time, as indicated by the severe pain, only one injection is required. If not, two, three or four attempts may be made at intervals varying from a few days to several weeks. If no relief is obtained after four such injections, I feel that further attempts would be useless. Often we find the posterior wall so thick that it is impossible to push the needle through, and in these cases I have resorted to the use of a mallet to drive it into the cavity. In using the mallet one is not so sure of being in the proper place, so I usually withdraw the needle and then reintroduce it by tactile sense, as I then have a far better knowledge of where the end of my needle is.

I have not said anything concerning the medical treatment of or rather topical applications to, the region of the sphenopalatine foramen, for the reason that in my experience I have seen nothing but the most transitory results occur from these applications, and do not believe the method worth trying.

SUMMARY

In every case in which a diagnosis of nasal ganglion neurosis has been definitely established, we should at least atttempt to give patients permanent relief from the severe neuralgias. That we do not obtain as large a percentage of results as we desire may probably be due to faulty technic. Nevertheless, on account of the simplicity of the injection and the freedom from danger, it ought, in every case, to be given a trial, as nothing is to be lost and everything gained. Even if only transitory results, say from four to nine months' duration, are obtained, we have accomplished much, as the patients can be injected at the expiration of this period with probably less danger than before.

108 North State Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BRUBAKER, THOMPSON, SLUDER AND POLLOCK

SIR ST. CLAIR THOMSON, London, England: This is a most interesting subject and I have heard much of it for twenty-five years. I am afraid we have all talked of it and heard of it, and "evermore came out by the same door by which we entered." I am inclined to think that just as the lunatic, the lover and the poet are of "one nature, all akin," so hay-fever, rhinorrhea, spasmodic sneezing and asthma are somewhat of "one nature, all akin." What that nature is, I am not prepared to say, but I think there are more things in our inheritance and in our nervous system than are dreamed of in our rhinology.

Inquiring into the history of many of these patients we find that they come most distinctly from what, for want of a better word, we call the neurotics. I will not go as far as the man who said his practice was confined to the neurotic, the erotic, and the tommyrotic. He was a neurologist. But in tracing the history of these people I have been struck by finding that a patient who has hay-fever or attacks of sneezing, had a father who had asthma, and I have lived long enough to find that that patient who in youth or adult life suffered from sneezing and rhinorrhea will get quit of it and in later years become a wheezy, placid old gentleman with bronchial asthma which takes him off to the silent realm. So that part of the subject I would suggest that we do not forget.

I endorse everything Dr. Thompson said in his paper, which my own experience entirely confirms. A few years ago the term "vasomotor rhinitis" was used, but the word "hydrorrhea" is better. I think I understood the doctor to say that cerebrospinal rhinorrhea came from traumatism. I have seen two cases where there was no traumatism, and by searching the literature and analyzing the cases reported by Bosworth in the earlier edition of his textbook, I find that he found, from postmortem records, that several of his cases were cases of cerebrospinal rhinorrhea. Of the two cases I had I have published one, and in that my conclusion was that the poor girl, 22 years of age and unmarried, with no bad family history, died of cerebrospinal rhinorrhea, at the time thought to be meningitis. My other case was seen in consultation with Sir Victor Horsley, and he threw out the suggestion that he was not sure it was not syphilitic. I have not published that case yet, although I have the notes and intend to do so; but the postmortem findings showed that Sir Victor Horsley was right, it was a syphilitic neurosis of the anterior fossa of the skull; but it was a case of rhinorrhea.

In regard to the tests, nasal rhinorrhea secretion contains mucin, while the cerebrospinal rhinorrhea secretions contain glucose or some other variety of sugar reducible by Fehling's solution. But there is a simple test, and that is, that with nasal rhinorrhea the handkerchief of the patient, when soaked, becomes stiff, as if it were starched; while with the cerebrospinal rhinorrhea the handkerchief remains soft. I have seen many cases that were not recognized because they did not give a Fehling's reaction; but if the fluid is not tested within an hour the sugar decomposes and you get no reaction. The other points Dr. Thompson brought out are all admirable, the fact that climate and age make very little difference, that the patient dies a natural death; also that the effect of the cerebrospinal rhinorrhea is more or less continuous, while the real rhinorrhea has its periods of intermission.

As regards treatment, I will never forget a paper read some twenty years ago by Dr. William White, the great surgeon of Philadelphia, on the success of the operation per se. He gave a record of cases out of his enormous experience, in which he had operated for symptoms, say abdominal or hemiplegic, and after he had done all this work, the patient got well. I think we should probably remember this in all the treatments we suggest. I do not wish to depreciate research in this condition; I think it is most admirable, and any of us who have had relatives or friends suffering from the agony of trigeminal neuralgia, will welcome the injection of alcohol or anything that will give them relief. We have a saying that the German doctor kills you, and the English doctor lets you die. I think, therefore, that both of us ought to cross the Atlantic and learn from you and your society how to make the patient comfortable.

Dr. Wolf Freudenthal, New York: From a clinical point of view it seems to me that the action of sneezing is analogous to that of coughing. That is, just as an effort is made from the lungs and lower respiratory tract to bring up the secretions or foreign bodies that get down into the deeper bronchi by coughing after the epithelia have brought them to the upper air tract, so it is natural that when any foreign body or substance gets into the nose, we should want to get rid of it in some way. In the lower area we can blow it out, but when this foreign substance gets into the region of the nervus ethmoidalis we cannot do so; in many instances it requires further action, and that act is sneezing. I do not understand the doctor's explanation of the action of the soft palate. After one or two inspirations we make an expiration. It seems to me the most natural thing that the palate would do is to close up. Is it open during this action, or can we keep it closed and yet sneeze? From the doctor's description we see that from many points in the system impulses may be brought to the nose. From a clinical point of view I want to remind you of the epistaxis that occurs during menstruation and the attacks of sneezing that occur before the end of menstruation. On the other hand, impulses that start in the nose may go to any other part of the body, including the lungs and bronchi. In reference to Dr. Thompson's paper I have seen about six such cases. There is no doubt that an angioneurosis is at the bottom of the disturbance. I have seen one case of rhinorrhea cerebrospinalis of the type described by St. Clair Thomson. No treatment seemed to make any impression on the patient. After six years she had an acute frontal sinusitis. I operated and she recovered soon afterward. Three or four years ago this rhinorrhea suddenly appeared again. A very peculiar fact was that after she left the hospital I was called to her house on account of a swelling over the frontal sinus, the side operated on. I ordered the usual medication and next day the swelling was gone. About eight days later there was an edema over the other frontal sinus and over the antrum. I knew then that it was an angioneurosis.

In regard to the papers of Dr. Sluder and Dr. Pollock: In trying to solve the problem of the acute asthmatic attack by physiologic experiments and in trying to look into the etiology of this condition during the attack—I studied this condition thoroughly—and am inclined to believe that the sympathetic nerve is the most important one during the acute attack. I would, however, like to remind those who do this work that the sympathetic and the vagus nerves are so interwoven that often we do not know which is the action of the sympathetic and which is that of the vagus.

Dr. Emil Mayer, New York: I have been greatly interested in this splendid presentation of Dr. Brubaker as I feel that it throws light on a question that I have not as yet been able to answer satisfactorily. It may help also to explain the effect of affections of the sinus on asthma in showing a direct connection between the nose and the spinal column. I have at various times called attention to the remarkable results following the use of cocain and trichloracetic acid applied to certain sensitive spots in the nose in cases of dysmenorrhea. It is really remarkable to note the prompt relief sometimes occasioned when women are in very great pain, unable to move about, pale and listless, and then to see their color return and absolute freedom from pain immediately follow this application to the nose. While the fact of relief in a large majority of cases has become fully established, the explanation as to why it occurs has until now not been sufficiently clear. It has been shown here that there is a direct connection between the nose and certain ganglions. Dr. Sluder asked one question: Why are there not more of these cases? The answer rests with the general practitioner. When he knows as much about these cases as we do, there will be more cases. I can say from my own experience in a large general hospital, in association with a visiting staff that made thorough examinations, there were daily requests from the physicians for examination and report on their patients by the laryngologist as well as by the other specialists whose opinion might be desired. In this way I had occasion to see many cases of asthma that would ordinarily not come to the laryngologist, and the number of cases were by no means as few as they would seem to be from the question put by Dr. Sluder.

I do not recall that Dr. Thompson spoke of the advantage of the internal administration of arsenic in the cure of these cases of hydrorrhea. I have used this remedy successfully in a number of cases of this affection looking on them as being analogous to affections of the skin. This is a field which many of us have overlooked. I have found a number of instances in which there was a remarkable similarity to the skin diseases in the mucous membrane. In a recent case of hydrorrhea I told the patient that I was going to give her some arsenic to relieve her trouble and she then informed me that some years previously she had had an affection of the skin which was entirely relieved by the internal administration of that drug and hence she was glad to take it in this present instance. The result was entirely satisfactory and the patient has remained well.

Dr. Orville H. Brown, Phoenix, Ariz.: The hypersensibility of this ganglion may play an important part in asthma. Asthma is a very complicated condition. As a disease it must have one exciting cause, although it may have many contributing causes, and in my opinion the probable cause may overshadow the essential, primary and direct cause. The muscular effort in normal inspiration and expiration is

wholly a passive process. In forcible expiration the air gets tangled up and in an effort to get out it rushes from one cell to another. That produces a much increased intra-alveolar pressure. It presses on the blood vessels, not only the chest but the abdomen. Theoretically, then, asthma might be produced in a normal individual by prolonged forcible expiration. Given, then, this condition which ordinarily produces this nonpassive expiration, without bronchitis, without nasal infection, without hay-fever, and there is an ideal condition for the individual to become asthmatic. Often there is also a pulmonary phthisis, and that helps to keep up the inflammatory condition. I have often wondered whether hay-fever was not due to focal pathology of the nose; but whether it is or is not we must get at the focal condition, and we must not forget that any inflammatory conditions around the nose or respiratory tract contribute to the pathology, and that an inflamed appendix or prostate can help to keep up this process which originally started in an inflamed sinus. Whatever keeps up the hay-fever condition must be ferreted out, and desensitization or removal of the pathology should be recommended.

DR. JOSEPH C. BECK, Chicago: One point impressed me with reference to the etiology, and that is the "etiology of the etiology." The gentlemen do not go far enough. Dr. Thompson merely touched on the subject by saying that the question of the endocrinology or what the internal secretions have to do with hydrorrhea nasalis is not in place. I do not know whether he meant that we were not fit or able to discuss the subject. However, I believe that the question of asthma and all this matter of sensitization is a disturbance of the glands of internal secretion. For instance, I do believe that the suprarenal glands play a most important part in the chemical change in the blood as, for instance, in the calcium content. You know how Wright of England treated the question of angioneurotic edema by administration of large doses of calcium. Crile has shown that marked changes take place when the suprarenals and other glands of internal secretion are affected and how the calcium content is changed. Give a large dose of epinephrin hypodermically to a patient during an attack of asthma and, as a rule, it has an effect. I believe that this is due to the hypoepinephrinization, and that day by day the dose will have less effect because there is a tolerance developed and the etiology of the etiology has not been studied and removed, that is, to know what is the cause of the disturbed condition of the suprarenal glands. It is well known that chronic infection, whether from bowels, appendix or teeth, produces a change in these glands, and there I think lies a great part of the trouble, the etiology of the etiology.

In reference to the affection of the ganglions and the work of Sluder, as presented by Dr. Pollock in his paper, there is not enough emphasis laid on the fact that men will not try this method of treatment because some other man says "I have tried it and it is no good." I had a patient referred to me recently by a neurologist in Chicago who has recognized that this ganglionic disturbance exists and has come to stay. It was referred for ganglion injection. The patient was difficult to anesthetize locally, so had to be put under general anesthesia. The operation was followed immediately by paralysis of the pupillary sphincter and the motor muscle (internal rectus). There was a loss of sensation to the cornea. We ought to be careful in such sphenopalatine cases where this complication occurs not to lose an eye following the injections.

DR. JOHN A. THOMPSON, Cincinnati: The necessity of writing a paper that can be read in fifteen minutes precludes any mention of the bibliography. Perhaps for the reason of condensing I spoke of the escape of the cerebrospinal fluid as being traumatic. I meant to include in that form those cases where the escape is caused by disease. A woman had an aphonia for nine months. She had a laryngitis secondary to a badly deflected septum. I straightened the septum and found behind that a bad infection of the posterior ethmoid and sphenoid. When I opened these cavities the dura was bare for one by one and a half inches; you could see the brain pulsating. A careful examination showed there was no bone between the nose and brain, and a very little further extension of the diseased condition might have caused a fatal meningitis, or by perforation of the dura permitted the cerebrospinal fluid to escape. Most cases are traumatic in the sense we usually use the word, but in other cases the perforation is through disease.

In regard to Dr. Beck's statement that we have not gone far enough with the etiology of the etiology, I meant only to say that so far there has been no observation, either experimentally or clinically, to show the relationship of the endocrine glands to nasal hydrorrhea or rhinorrhea, whichever term you prefer. As for asthma: While cases of nasal asthma do occur, in a majority of these cases the cause is outside the nose. Treating these patients by tracheal injection for twenty-eight years I have come to feel that bronchitis exists in all cases of asthma. If you will cure the point of infection from which the acute attacks spread out, you will cure many more cases of asthma than you do by treatment through the nose.

DR. GREENFIELD SLUDER, St. Louis: Dr. Beck spoke of some unfortunate experiences with the injection of the nasal ganglions. I, too, have had some unfortunate experiences. In the course of probably 1,500 injections I have had hemorrhage four times, once a hemorrhage of clinical issue immediately on the insertion of the needle. Three times I have had secondary hemorrhage. If an accident happens, it seems to me it punctures the internal maxillary artery rather than the sphenopalatine. When a hemorrhage occurs it must be packed at once, but that packing is very easily inserted and the flow is easily controlled if you follow the track of the needle. If one does not know the origin of the trauma and attempts to pack such a case, he must pack anteriorly and posteriorly. I have also had the misfortune to paralyze the external rectus. When that happens it can be explained by the connective tissue of the sphenomaxillary fissure being unusually loose, permitting the flow of the alcohol upward and outward. I believe Dr. Beck's trouble would have been avoided by the very slow instillation of the alcohol.

DR. HARRY L. POLLOCK, Chicago: Regarding the nasal hydrorrhea of the sympathetic type: In order to make a diagnosis of the sympathetic type, I stated that all pathologic conditions must be excluded. In some cases Dr. Thompson said polypi were present. In my cases where I diagnosed sphenopalatine neurosis of the sympathetic type, everything was normal, except a slight paleness of the mucous membrane, so I think we had a noninflammatory ethmoiditis. In regard to the treatment of this sympathetic type: It is explained by my chart. I have had many of these cases, and if you shut off the afferent impulse you are bound to cure the patient at once. In regard to the cause of asthma: I presented a paper on this and went very thoroughly into it, to find what was the underlying cause of asthma. Polypi, focal infections, split proteins, these are not the real cause, but the underlying principle of all is the altered secretion of the ductless glands. You may have one patient with nasal polypi and asthma, and the next twenty-five will have a nose full of polypi and no asthma. More cases of nasal polypi are complicated by asthma than not. I believe it is due to the altered secretions of the ductless glands; otherwise every patient with polypi would have asthma.

An Early Spanish Physician.—Dr. Francisco Javier Balmis, a Spanish physician, was, while residing in Mexico, the individual selected by the Archbishop-Viceroy of that country, to take to Europe specimens of the plants of the agave and begonia, which were in favor at that time for the treatment of venereal diseases and scrofula. In 1804 he was ordered by the king of Spain to introduce vaccination against smallpox in the Spanish colonies and at the same time to establish boards to promote its use. He did this in the Canary Islands, Porto Rico, Cuba, and in Venezuela, Guatemala, and New Spain (Mexico), and also introduced it in the English settlements and among the Moors and Chinese in Asia. He wrote a number of articles on these subjects.—From Beristain's Bibliografia Mexicana.

TRAUMATIC NEUROSES IN WAR AND IN PEACE *

T. H. WEISENBURG, M.D.
PHILADELPHIA

For a period of four months I was on duty in U. S. Army General Hospital No. 30, Plattsburg Barracks, N. Y. This hospital was the only so-called war neuroses hospital conducted by the War Department in this country. There were three groups of patients: (1) those who had been sent from camps in this country; (2) soldiers who had been in France but who had not seen any actual fighting, and (3) soldiers who had been in combat. The majority of these cases, no matter what their source, were sent to Plattsburg because they were difficult to cure.

This was particularly true of the overseas cases. It is, of course, known that a majority of the patients were cured in front line stations, and that those who were not thus cured were sent to Base Hospital No. 117 or to other centers. The more refractory of these cases or those that seemed to be incurable, or that for some reason or other did not offer favorable conditions for cure, were returned to the United States and to Plattsburg.

HYSTERIA

Of the patients studied in Plattsburg, those with hysteria attracted most attention. There were present the usual types which have been so well and often described, such as aphonia, stuttering, amnesias, paralyses of both legs and more rarely of one upper or lower limb, less frequently a combination of mutism with deafness, a few cases of blindness, tremors, gaits of various sorts, and a large number of so-called epileptic or fainting cases. There is no need of describing the sypmtoms in these cases, for the patients presented the usual pictures which are present in all. However, some unusual phenomena were observed. There was one case, which is worth particular mention, of a man who had a constant dancing of the eyeballs:

> A boy, aged 18 years, with a normal history, after a particularly trying attack which lasted many days, and in which many of his companions were killed, began to develop a tremor all over his body with quick jerking movements of the head and a constant dancing of the eyeballs to which his lieutenant called his attention. This was in April, 1918. His tremors gradually lessened, but the movements of the eyeballs continued. It is interesting to note that besides having been gassed he had a flesh wound in the left leg, and a rifle bullet wound in one shoulder. Examination did not detect anything unusual, with the exception of quick reflexes; but there was present a constant horizontal nystagmus, which greatly increased under excitement, and almost disappeared when the patient was at rest or when free from exciting stimuli, and was absent when he was asleep. The ocular movements were quick and of wide range, and were different from the nystagmus seen in multiple sclerosis or any other disease.

There is no reason why there should not be a hysterical tremor in the eyeballs, just as well as in any other part of the body, but that such a thing is possible, is interesting.

EPILEPSY AND HYSTERIA

One of the most difficult problems was the differential diagnosis of epilepsy from hysteria. It was commonly known by the soldier that fits would disqualify him for service and as a consequence, a great many so-called epilepsies developed. Of those patients returned to Plattsburg from the American Expeditionary Forces whose cases were diagnosed as epilepsy, a surprising number proved to be such, although there were a great many cases of hysteria diagnosed as epilepsy. On the whole, it cannot be said that war experience produced epileptic attacks; but undoubtedly in a number of patients, epilepsy appeared earlier than would have been the case in ordinary civil life. The diagnosis of epilepsy was nearly always possible after an attack was observed, although in a number of cases it was difficult.

There was no essential difference in the hysterias which developed in the patients who had had their entire service in this country, and in those who had been with the American Expeditionary Forces, including those who had been in actual combat, with the exception that in the home troops tremors were not prominent. There were several cases of so-called "trench back" or camptocormia, all of them from this country. There were three instances of so-called reflex contractures in the hands and fingers. As is, of course, well known, Babinski and Froment believe that these are organic in character; the opposing view being held by others, notably Roussy and Hurst. In the few cases observed by us, we were able to effect a cure, and I have no doubt that they were purely hysterical in character.

It has been said that this war produced two new types of neuroses: (1) the so-called reflex contractures of the hands and fingers, and (2) trench back or camptocormia. I have seen some examples of the latter condition in civil life, and in January, 1918, I exhibited in a clinic, to a class of medical officers under instruction at that time in Philadelphia, a medicolegal case with a history of an injury to the hand, a typical example of reflex contracture of the hands and fingers.

SIMILARITY OF NEUROSES IN WAR AND IN PEACE

In view of this experience, the question naturally arises: Is there any difference between the hysterias of war and of peace? In my experience of a good many years with traumatic neuroses I have seen a duplication of practically every type of hysteria seen in Plattsburg, but, of course, not in such abundance and of such variety. In civil life, aphonia, stuttering, deafness and blindness are not so frequent; but paralysis, contractures, tremors and fits are common.

This view is not held by Schwab, who states that "the war neuroses are specific war conditions, and with the ending of the war they disappear from clinical experience. Their place is taken by the civilian neuroses, which are different things." The opposing view is taken by Leri, who believes that the hysterias of war and of peace are identical.

This difference in the point of view held by Schwab and by myself is, no doubt, due to the different conditions under which neuroses were studied. Many of the patients returned from France were so much better when they reached Plattsburg that they presented an entirely different clinical picture. Besides, their presence in this country virtually assured them that they would not be returned to France. Therefore the conditions surrounding them approximated a peacelike basis and offered an excellent opportunity for comparison.

* Read before the Section on Nervous and Mental Diseases at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

Of the neuroses, other than hysteria, Schwab mentions neurasthenia; psychasthenia; hypochondriasis; anxiety neurosis; effort syndrome; exhaustion; timorousness or state of anxiety; concussion, (*a*) syndrome, (*b*) neurosis; gas, (*a*) syndrome, (*b*) neurosis.

As in hysteria, the clinical picture of these conditions changed materially, and only the neurasthenias and anxiety neuroses were at all prominent, although there were some psychasthenic and hypochondriac states. These neuroses were similar to those found in civil life.

INFLUENCE OF THE ARMISTICE

Some interesting observations were made regarding the suggestibility of patients and the influence of the armistice. It did not cause a very great change, and there were practically no spontaneous cures, although our work became much easier and there was a greater incentive for the patients to get well and less difficulty in getting them well. One interesting observation was made: Before the armistice it was possible to suggest new areas of disturbance of sensation or an increase of paralysis. This was impossible after the armistice, and the only suggestion that the patients took kindly to was that of getting well.

The suggestibility of hysteria was very well shown in the occurrence of "fits." Patients in whom attacks were absent for months suddenly developed them in times of stress; as, for example, when under arrest after an offense had been committed. One patient left the post under the impression that he had the right to do so, but on discovering that he was absent without leave, he developed a series of attacks lasting several days, giving this occurrence as an excuse for his absence.

PERSONALITY OF THE WAR NEUROTIC

There was, however, one very distinct impression made on all of the medical officers who were on duty at Plattsburg for any length of time. It was the first time that I have ever had the opportunity of living exclusively among neurotics, for any length of time. Because of the peculiar situation at Plattsburg, it being an old army post converted into a hospital with practically no outside attractions, the atmosphere of the place naturally was much more acutely felt than would have been the case if such a hospital had been located in or near a large city. I was sent to Plattsburg and was placed in charge of all treatment; that is, it was my duty to see that the patients got well. The patients were indifferent. They seemed to care about getting well and yet not to a very great extent. After the armistice, it was different. They wanted to go home, but the incentive for getting well was not even then what it should have been. The individual patients, while they were talkative, especially about their deeds of valor, at the same time were by no means so cheerful, openhearted and joyful as the average wounded soldier in other hospitals. Most of the patients were boastful, and wore all sorts of decorations, even wound stripes to which they were not entitled. On questioning, it was often found that some had put on wound stripes after they had been in a hospital with a mere cold.

Another noticeable thing was the difficulty we encountered in managing both enlisted men and officers. They were constantly complaining and finding fault. There were many who had been absent without leave. Every one who is familiar with the service knows that all soldiers grumble about everything under the sun. This is a normal condition; but the patients in Plattsburg were certainly more difficult to handle than were those in other hospitals. Perhaps this should be expected among such unstable neurotics.

In other words, the conclusion was forced on me that the war neurotic, as seen in Plattsburg, was distinctly different from the normal individual; that he was boastful, somewhat depressed, erratic and certainly unreliable.

Numerous studies have been made of the personality of the war neurotic and of his neuropathic inheritance. Schwab states that the proportion of neuropathic cases in his experience was never under 2 per cent., or much greater than 5 per cent. When, however, it is taken into consideration that the more difficult and intractable cases were returned to the United States, it can be readily seen that the proportion of such individuals was much greater in Plattsburg.

TREATMENT OF THE WAR NEUROTIC

The treatment of the war neurotics in Plattsburg did not offer any unusual experience. The method adopted was similar to that found successful in neurologic centers abroad. The physicians, hospital corps men and nurses were instructed as to the nature of hysteria and war neuroses, and an effort was made to institute a so-called "atmosphere of cure," which was eminently successful. Electricity was only occasionally used. In fact, cases which were difficult to cure in France and in camps in this country offered no special difficulty, once the "atmosphere of cure" was established; for as happens in such instances, success led to success, and nurses and hospital corps men were as successful as the physicians.

As an example of this, I lectured one afternoon to those hospital corps men who were on duty at night. That same evening, twelve patients arrived from Camp Taylor, and were met by one of these men. Among these patients was a man who had paralysis of an arm, another who could not talk, a third who walked in a hopping manner, a fourth with paralysis of a leg, and a fifth with a very markedly bent back. On the way to the hospital, a hospital corps man told the patients of the wonderful cures that were made. I saw these patients on their arrival at the hospital and, seeing the good work that was being done by the hospital corps men, gave them instructions not to have them disturbed. The following day all these patients were well with the exception of the man with the bent back, who after one application of the faradic current promptly straightened up. This is an example of what can be done by an untrained attendant where there is good team work and the example of success.

TREATMENT OF THE PEACE NEUROTIC

The treatment of the traumatic neuroses presents different conditions. In the war neuroses, as has been generally accepted, the cause lies in a defense reaction to a personally intolerable situation, whereas in the peace traumatic neuroses, the causes can be assigned either to the desire of the injured for compensation, in the actual trauma produced, or in the fear of the consequences of the injury. I have had many years of experience with traumatic neuroses, testifying both for and against corporations, and I have always felt that the chief reason why so many of these cases last such a long time is that they are not disposed of immediately after their occurrence.

In the work of the Industrial Accident Commission of California, an excellent opportunity has been offered to study the final outcome of accident neuroses. Under the direction of Dr. Walter F. Schaller,[1] a special investigation was made of fifty cases. All but four of the persons were personally interviewed, and in all but two of them the factor for recompense was present. It is unnecessary to give in detail the results of this investigation, but it is interesting to note some salient facts:

Age was apparently unimportant.

Women showed a greater tendency to recover, although not one was entirely relieved.

The severity of the original injury apparently bore no relation to the outlook for recovery.

Most of the symptoms were predominantly hysterical.

The cheerful patients showed a marked contrast in recovering to those who were depressed.

Schaller emphasizes that of all the factors which enter into the course of the accident neuroses, the question of compensation is one of the most important, and its great psychic influence cannot be denied. This was not true, however, in all of his cases, for in three, there was recovery while the patients were still being paid under the periodic payment plan. The cases showing lump sum settlement proved the most favorable for recovery, early lump sum settlement being more favorable than periodic payments and a final lump sum settlement.

One very interesting phase of the investigation was the lapse of time between the injury and the recovery, the longest period being three years and nine months and the shortest, seven months. It can be seen from the foregoing that there is no basis of comparison, so far as cure is concerned, between the traumatic neuroses of war and of peace.

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ABSTRACT OF DISCUSSION

Dr. Robert McGregor, Saginaw, Mich.: There does not seem to be any essential difference between war neuroses and the neuroses of common life. Whatever distinctions there are lie in the severe character of the causal conditions, the intensity of the symptoms and the facility with which the symptoms interchange between those of anxiety states and those of hysteria. I had the good fortune to see many of those cases in military hospitals in England and France and also in civilian hospitals in London among women and children as a result of air raids. I believe the problem of treatment is psychologic. At the same time one should not forget that many organic conditions are bound to underlie those manifestations, and the victim of severe shock must always remain the potential epileptic.

Dr. Charles A. Rosewater, Newark, N. J.: While on duty at General Hospital No. 30 at Plattsburg, I saw a case which presented features of unusual interest, and demonstrated, as stated by Dr. Weisenburg, that hysterical manifestations are induced by suggestion and can be cured by suggestion, even in cases of long standing. For about ten years a soldier had contractures of the right toes, with rigidity of the right ankle and partial rigidity of the right knee. He limped perceptibly, walked on the outside of the foot. He was unable to rest his weight on the foot. There was almost complete anesthesia of the entire leg. It appears that while working as a carpenter, his foot was crushed in an accident. Amputation of the toes was advised, but the patient declined and was treated by his physician for several months. For weeks the foot was kept in an elevated position, followed by a period during which crutches and later a cane were used. When finally the dressings were discontinued, the doctor is said to have declared, "I saved your foot, but you will never be able to use it." In response to this suggestion, the patient never used his foot. It is difficult to understand how the soldier was considered fit for overseas duty, but, nevertheless, he was sent to France. While drilling he fell, and being unable to keep up with his company, was returned to this country with the diagnosis of "hysterical paralysis with contractures." Learning from him that he was a singer, I reminded him that if he held back the tones he could not sing, and explained to him that his inability to use the foot was entirely due to the fact that he was holding back the impulse necessary to move the muscles. I assured him that he was perfectly able to move the foot which was a trifle weak from disuse. He reacted favorably to the reeducation seances, and after a few days was completely cured, and walked as he did before the accident ten years ago.

Dr. W. H. Hicks, Newark, N. J.: As a member of the advisory examining board of the state of New Jersey I saw many cases of psychoneurosis and I would like to ask Dr. Weisenburg if the psychoneurosis which occurred in many cases was due to a fundamental law of self-protection, a psychic inhibition, the best way for the patient to escape danger and founded on fear; if such was the case, how could one determine a real psychoneurosis that produced a monoplegia from a malingerer who had sufficient willpower to simulate monoplegia?

Dr. Lewis J. Pollock, Chicago: The policy adopted by the A. E. F. in the treatment of the psychoneuroses was such as to centralize the patients and to treat them as soon after the development of the condition as possible. For that reason relatively few cases were seen in base hospitals. However, during the early months of the active participation of the A. E. F. in this war it became necessary for a considerable number of these patients to be sent through base hospitals. I had the opportunity of observing about 350 cases of psychoneuroses developing at the front. Although agreeing with Schwab that the history of neuropathic hereditary taint did not frequently make its appearance, it was noted in a large percentage of cases that the patients themselves gave a history of having a certain type of make-up which we are accustomed to speak of as unstable. By this I mean that the individual had always been oversensitive, hyperimpressionable, easily upset, inclined to overscrupulousness or diffidence and embarrassment. Frequently he was the subject of various fears, as fear of lightning, high places, at times fear of loss of consciousness and rarely death or insanity. Though the fundamental features of the war neuroses are the same as those of civil life, the picture in its entirety differs in many respects in the cases observed in France from the condition met with in civil practice. This difference is probably due to the numerous conditions tending to produce the neurosis and which occur consecutively. From the time a man is inducted into the army until his return to civil life he is the potential possessor of a neurosis. Conditions in training camps, on transports, in rest camps, in cantonments, in France awaiting active service, in battle and in base hospitals on the way back from the line, all contribute to the formation of a neurosis. It is, therefore, rare to meet with only one type of a neurosis in a single individual. If a conversion hysteria develops in a soldier as the result of any situation which might be present, the rapid disappearance of the symptoms following the many defective methods of treatment does not mean that the man is well. Most frequently when the hysterical symptoms disappeared an anxiety neurosis was found to be present, the treatment of which was essentially a different thing and one marked by slow recovery and stubbornness. It is surprising to me to note that Dr. Weisenburg reports so many cases showing the stigmata of hysteria, as aphonia, paralyses, etc. Inasmuch as it was the policy of the neurologists in France to send to the United States only such cases as were constitutional and inasmuch as the hysterical stigmata, whether occurring in constitutional cases or not, were so easily cured, it occurs to me to inquire as to whether these stigmata did not redevelop during their journey homeward. I do not believe that the desire

1. Schaller, W. F.: Diagnosis in Traumatic Neurosis, J. A. M. A. 71:338 (Aug. 3) 1918.

to avoid duty at the front contributed largely to either the formation of the neurosis or its incurability. It was not the fact that the individuals consciously wished to avoid service, but their character formation was such that they were unable to successfully cope with the situation and although frequently consciously wishing to "carry on," unconsciously the neurosis developed as a means of escape from a situation which produced a conflict between the man's social and moral desire and his incapability. It was only in this manner that the desire to avoid service contributed to the formation of the neuroses and not in the sense of disloyalty or cowardice.

DR. THEODORE H. WEISENBURG, Philadelphia: The differential diagnosis between hysteria and malingering is not easy, and in Plattsburg it was one of the most difficult of the questions that we had to decide. The reason for this is evident because hysteria itself is a motive disease, whereas in malingering the whole basis is that of a desire to deceive. I recall one case that gave us particular trouble. This man had a bent back. He developed this condition seventeen days after he entered the service. After a year of treatment in various hospitals, he was finally made to straighten up in two or three minutes, which to some of us proved that he was a malingerer. Yet other careful neurologists had found such disturbances in him as hemianesthesia. Therefore, it was difficult for us to label him finally as a malingerer. Dr. Pollock's discussion is very interesting and intelligent. His experience was different from mine in the sense that he dealt with neuroses very soon after combat, whereas the patients we had in Plattsburg approached peace conditions. As he stated, it was the policy of the War Department to return to the United States, at least in the beginning, only the constitutional cases. Therefore it is only natural that there should be in these cases a great many with a psychopathic history. Regarding Dr. Pollock's question as to whether or not the symptoms persisted from the beginning, for it was his thought that there might have been intermissions, this might have been the case, but careful histories showed that in a number of instances the symptoms persisted from the beginning. Undoubtedly the fact that the patients knew that they would not be returned to the front had a beneficial influence in their cure and this was shown in the armistice, for while this did not bring about any great change and there were no spontaneous cures, yet our work became very much easier.

A THERAPEUTIC STUDY, PHARMACOLOGIC AND CLINICAL, OF BENZYL BENZOATE*

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During the past four years, I have been engaged in an extensive and intensive pharmacologic study of opium, and more especially of the so-called "minor" opium alkaloids, individually and in combination with each other and with the principal opium alkaloid morphin. As the result of this work, it soon became evident that the minor opium alkaloids can and do modify the effects of morphin very markedly when given in combination with it. Thus it was pointed out that there is a distinct difference in the analgesic effect produced by morphin, on the one hand, and by opium, on the other, because of the presence of the minor alkaloids in the latter.[1] Again, important differences have been shown to exist for the same reason between the pharmacologic action of morphin and opium on the respiratory center,[2] the vomiting center,[3] and other centers in the medulla.

EFFECTS OF OPIUM ALKALOIDS ON SMOOTH MUSCLE

One interesting feature disclosed by the pharmacologic studies just mentioned is the fact that while opium and its alkaloids exert their most marked effects on the central nervous system, nevertheless they produce also distinct and important pharmacologic effects on peripheral structures, and more particularly on smooth muscle organs. I first studied the action of the opium alkaloids on smooth muscle in connection with a pharmacologic study of the ureter,[4] because excised rings of that organ permit of an accurate analysis of the action of drugs on the rhythmic contractions or peristaltic movements and the tonicity of smooth muscle. It was soon established from studies on excised ureters of lower animals and of man as well as from observations of the ureters in lower animals in situ, that the opium alkaloids in respect to their action on those organs can be divided sharply into two classes: the pyridin-phenanthrene group, of which morphin is the principal member, on the one hand, and the benzyl-isoquinolin group, of which papaverin is the principal representative, on the other. The morphin group was found to stimulate the contractions of the ureteral preparations and increase their tonicity, while all the members of the papaverin group were found to inhibit the contractions of the ureters and lower their tonus.

It was found, furthermore, that in combinations of members of the two groups, small amounts of the benzyl-isoquinolin class were sufficient to overcome the stimulating effects of the morphin group. These observations led to several practical deductions. Thus, at my suggestion, Dr. J. T. Geraghty injected a solution of papaverin directly into the ureter of a patient and in that way facilitated the expulsion of a small ureteral calculus.[5] Again, the tonus-lowering action of papaverin and its relatives gives a scientific explanation for the well-known empiric observation that opium is more efficient in relieving the pains of renal colic than is morphin when given alone, because, when the combination of total opium alkaloids is administered, the patient has the advantage of both the central narcotic or analgesic effect of morphin as well as of the peripheral tonus-lowering or antispasmodic influence of the papaverin group.

Following the studies of the effects of the opium alkaloids on the smooth muscle of the ureter, I investigated the action of the same alkaloids on other kinds of smooth muscle. The results of these investigations have been published elsewhere.[6] The smooth muscle structures thus studied were the intestine, pyloric rings, uterus, gallbladder, urinary bladder, biliary ducts, seminal vesicles, vas deferens, bronchial rings, and rings of excised arteries. As a result of these investigations, I was led to conclude that the action of the opium alkaloids on all kinds of smooth muscle structures is the same as that described in connection with the ureter, namely, that the morphin alkaloids stimulate contractions and increase tonus, while the papaverin alkaloids inhibit contractions and lower tonicity, and, furthermore, that so far as the peripheral

* Read before the Section on Pharmacology and Therapeutics at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Macht, D. I.; Herman, N. B., and Levy, C. S.: J. Pharmacol. & Exper. Therap. 8: 1 (Jan.) 1916.
2. Macht, D. I.: J. Pharmacol. & Exper. Therap. 7: 339 (Oct.) 1915.
3. Macht, D. I.: Tr. A. Am. Phys. 1916
4. Macht, D. I.: J. Pharmacol. & Exper. Therap. 9: 197 (Dec.) 1916.
5. Macht, D. I., and Geraghty, J. T.: Bull. Johns Hopkins Hosp. 27: 119 (April) 1916.
6. Macht, D. I.: J. Pharmacol. & Exper. Therap. 11: 389 (June) 1918

effect is concerned, in case of combinations of the two groups, the benzyl-isoquinolin constituents exert the predominating effect. Here, again, some practical deductions were drawn from the experimental data. Thus it was found, as has been long known by empiric observation, that opium is more efficient in relieving gallstone colic and uterine colic than is morphin when administered alone.

Following the experimental investigations just described, I undertook a further analysis of the interesting peripheral action of the opium alkaloids on smooth muscle. The results of these investigations have been published before. Briefly stated, the conclusions to which these studies have led were that the stimulating effect of the pyridin-phenanthrene group of alkaloids is to be attributed to the pyridin portion of their molecules, while the inhibitory and tonus-lowering action of papaverin and the other members of the benzyl-isoquinolin group are to be ascribed to the presence of the benzyl grouping in their molecules. The reasons for these conclusions are to be found explained in detail in a previous article.[7]

EFFECT OF NONALKALOIDAL AND NONNARCOTIC COMPOUNDS

These observations and conclusions led me to surmise that possibly the inhibitory and tonus-lowering effects of papaverin might be produced by the exhibition of a benzyl grouping in some simpler form. Accordingly, a search was made for simple nonalkaloidal anl nonnarcotic compounds containing the benzyl radical which could be administered to animals without toxic results. Two such bodies were discovered. They are the well-known esters benzyl benzoate and benzyl acetate. As these esters are practically insoluble in water, their pharmacologic action could not be well studied on excised tissues or isolated organs; but experiments with them on intact animals revealed the fact that both of these esters actually produced the same pharmacologic effects as those of the opium alkaloid papaverin, and that they were much less toxic than papaverin. Metabolic studies in connection with these experiments showed that the benzyl group of benzyl benzoate and benzyl acetate is, in a large measure, converted in the body into hippuric acid and is excreted as such in the urine, and also in the saliva, bile and pancreatic juice. The comparatively very low toxicity of benzyl benzoate and of benzyl acetate for animals, and their striking papaverin-like effects on various viscera, led me to try their action on myself, and as no untoward or even disagreeable symptoms followed the ingestion of these drugs by mouth, it was deemed justifiable to administer these agents to suitable patients with their consent.

The conditions in which is was anticipated that the benzyl effect would tend to produce therapeutic results were those either of excessive peristalsis or excessive spasm of smooth muscle.[8] It would take too much time in this communication to describe in detail all the cases in which the benzyl esters were administered. I need only state that for oral administration the benzoate was chiefly used, as the acetate, owing to its sharp, fruity, banana-like odor, is liable to disagree with many stomachs. The benzoate was administered either in the form of an alcoholic solution or, dissolved in oil, in the form of capsules. Occasionally, intramuscular injections were also employed, in which case both the benzyl benzoate and the benzyl acetate were given in oil.

CLINICAL CONDITIONS TREATED WITH BENEFIT

The clinical conditions in which the benzyl esters were given and in which their administration was followed by remarkable pharmacologic and therapeutic results can be summarized as those of:

1. Excessive peristalsis of the intestine, such as in diarrhea and dysentery. Here, truly remarkable results were obtained. Diarrheas of long standing, both in young and in old persons, were quickly checked by a brief employment of benzyl benzoate by mouth; and even in cases of dysentery also, patients were greatly benefited by it. A series of dysentery cases has been studied for me by Professor Haughwout of the University of the Philippnies, with most remarkable success, and is reported by that author elsewhere.[9]

2. Intestinal colic and enterospasm, both of a postoperative and other character.

3. Pylorospasm, whether of functional character or produced reflexly by ulcers and neoplasms. In these cases the effects of the drug could be and were studied by the roentgen-ray method.

4. Spastic constipation, in which there was a tonic spastic condition of the intestine. This was relaxed by the antispasmodic action of the benzyl radical and the condition relieved.

5. Biliary colic. In a number of cases of gallstone colic, patients were treated very successfully with benzyl benzoate.

6. Ureteral or renal colic. I have collected records of a number of such cases in which patients were treated with the benzyl esters with very good results.

7. Vesical spasm of the urinary bladder. Here also, a number of patients with these affections were treated with remarkable results.

8. Spasmodic pains originating from the contractions of the seminal vesicles. At least two cases have been found in which patients had such pains, in both of which great relief was experienced after the administration of benzyl benzoate.

9. Uterine colic. I have a record of a large number of cases of spasmodic dysmenorrhea, in which treatment by other drugs, by pessaries and even by curettage was unsuccessful, in which complete relief was obtained after one or two doses of benzyl benzoate by mouth.

10. Arterial spasm. Under this heading I include a large number of cases of hypertension or high pressure. It was found that the administration of benzyl benzoate by mouth markedly lowered the blood pressure, both the systolic and the diastolic, the effect, in practically all such cases, being more lasting than that produced by the administration of nitrites. Indeed, patients who did not respond to the nitric treatment often responded with a falling blood pressure after administration of benzyl benzoate. I have been giving benzyl benzoate by mouth to a large number of nephritics over long periods of time. No deleterious effects on the kidney function have been noted in any of these; the hypertension, however, has been greatly improved in most of them. The effect of the benzyl

7. Macht, D. I.: J. Pharmacol. & Exper. Therap. 11: 419 (July) 1918.
8. Macht, D. I.: Proc. Soc. Exper. Biol. & Med. 15: 63 (146) 1918.
9. Haughwout, F. C.; Lantin, P. T., and Asuzano, M. A.: Protozoologic and Clinical Studies on the Treatment of Protozoal Dysentery with Benzyl Benzoate, Arch. Int. Med., to be published.

treatment on the arterial wall is seen from the fact that in cases of high blood pressure benzyl treatment produces a fall, not only in the systolic but also in the diastolic readings. Thus, for example, in one case, after the administration of benzyl benzoate by mouth, the blood pressure fell from 200-140 to 180-115; in another, from 320-160 to 255-140; in another, 194-100 to 178-80, and in another, from 215-145 to 190-135. A number of cases of coronary spasm (angina pectoris) seemed to be benefited by the benzyl treatment.

11. Cases of bronchial spasm. It was found that benzyl benzoate was capable also of producing relaxation of the bronchial spasm in patients suffering from true asthma. As the term asthma is applied to a large variety of conditions, and even bronchial asthma is etiologically not a single entity but is produced by a great many factors, it was natural to find that not all cases of asthma responded to the treatment. It may be stated, however, that wherever there were signs of bronchial constriction or spasm, benzyl therapy produced relief in almost every case. I collected records of at least 200 such cases. A fuller paper on the subject is published elsewhere.[10]

While the indications for the exhibition or administration of the benzyl esters, as described above, are manifold, it will be seen that the rationale of the treatment in all the cases is fundamentally one and the same, namely, that it is due to the inhibitory and tonus-lowering or spasm-relaxing action of the benzyl radical on smooth muscle. A complete pharmacologic study of the benzyl esters, with further therapeutic observations, was published in the *Journal of Pharmacology and Experimental Therapeutics* for June and July, 1918. Since the publication of those papers, I have collected a great deal of additional data, both in Baltimore and from different parts of the United States and abroad, which have fully corroborated the original findings and, indeed, have exceeded my expectations.[11]

ABSTRACT OF DISCUSSION

DR. DOUGLAS VANDERHOOF, Richmond, Va.: Would you use this drug in hiccup?

DR. DAVID I. MACHT: I would not. Our perfection of it is not that far advanced.

DR. W. A. BASTEDO, New York: Dr. Macht, is the dose in drops? Has it abolished peristalsis in the alimentary tract?

DR. DAVID I. MACHT: It does not abolish peristalsis completely. The only case of this kind that I had was in a child, and the patient got well. In regard to the dose, I meant drops.

10. Macht, D. I.: South. M. J. **12**: 367 (July) 1919.
11. Macht, D. I.: J. Pharmacol. & Exper. Therap., Proceedings to be published.

The Changing World.—One of the signs of the times is that Arthur Schnitzler's "Professor Bernhardi" has recently been having a run at a theater in Vienna. It was published in book form several years ago but the censor would never allow it to be given on the stage as it protrays the conflict between the priest, who insists on the religious rites for the dying, while the physician tries to save the patient—who does not know that he is dying—the anguish of the knowledge of this fact. The play brings in fifteen physicians. Schnitzler is the son of a Vienna physician and first studied medicine, graduating in 1885 and holding the post of second physician to the General Hospital in Vienna from 1886 to 1888. The *Fortnightly Review* once said of him, "No dramatist has written tragedy with so light a hand or comedy with so ironically pathetic a smile as Arthur Schnitzler."

THE USE OF BENZYL BENZOATE IN DYSMENORRHEA*

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It requires no little temerity to favor the addition of another drug to the already too lengthy list of medicines used for the relief of dysmenorrhea, but the logic of Macht's paper[1] recommending the use of benzyl benzoate in all painful spasmodic conditions of smooth muscle organs was too compelling to be resisted. Therefore, when my attention was called to this article by my colleague, Professor Hirschfelder, we determined to make a clinical study of this new antispasmodic, or rather this newly discovered action of a well known substance. This study is not based on the general run of cases as they come in private and dispensary practice, but on cases deliberately selected from among college women and nurses, because of their high intelligence and ability to cooperate in following directions and answering necessary questions under circumstances known to be experimental.

This so-called minor gynecologic condition has great import because of its frequent ocurrence, its economic influence, its unknown etiology and the very unsatisfactory results of its treatment. Tabler and Engelman (Block)[2] say that from 50 to 80 per cent. of American girls suffer from dysmenorrhea. Be the percentages what they may, there is scarcely a school, store, office, factory or home that is not interfered with on account of young women being either reduced in efficiency or entirely incapacitated.

CLASSIFICATION OF DYSMENORRHEA

Of the etiology of dysmenorrhea we know little, and none of the many theories has been incontrovertibly established; although the following classification of Block,[3] based on theories of cause, comes nearer being really logical than most others:

1. Obstructive. These cases are usually operative.

2. Ovarian, due to an increase of ovarian secretion; treated by inhibiting the hyperactivity of the ovary by cocainizing or cauterizing the "genital spots" on the nasal septum or by neutralizing the excessive secretion with epinephrin.

3. Vagotonic, due to irritability or increased tonus of the autonomic nervous system. This type is usually called spasmodic, or essential dysmenorrhea; treated by an antispasmodic like atropin which diminishes the irritability of the autonomic nerves, thereby relaxing the uterine musculature, thus relieving the colic.

The pelvic division of the autonomic system supplies the uterus, and there are also fibers from the antagonistic sympathetic system.

In women with vagotonia, which is an increased irritability of the autonomic system, the uterus is spastic; the control by the sympathetics having been in some way overbalanced so that at the menstrual period spasmodic or essential dysmenorrhea results.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, June, 1919.

1. Macht, D.: J. Pharmacol. & Exper. Therap. **11**: 419 (July) 1918.
2. Tabler and Engelman (Block), quoted by Doederlein, T. J.: Surg., Gynec. & Obst. **19**: 165-168, 1914.
3. Block: Am. J. Obst. **72**: 945 (Dec.) 1915.

VALUE AND EFFECT OF ATROPIN CONTRASTED WITH THAT OF BENZYL BENZOATE

As atropin paralyzes the autonomic group, it is a logical treatment for this type of painful menstruation.

Novak of Baltimore[4] called attention to the atropin treatment and reported good results in about thirty cases and he quoted Novak of Vienna,[5] who had used it for many years.

For some time I have used atropin in doses of from $\frac{1}{150}$ grain to $\frac{1}{50}$ grain, according to the severity of the attack, with very satisfactory results; but I must confess to a reluctance to use it extensively because it is too potent a drug to place in the hands of every patient fourteen times a year and, furthermore, it frequently must be given in dysmenorrhea to the point of tolerance in order to get the desired antispasmodic effect.

The favorable reports on the use of atropin, the logical basis for its use and the good results obtained convinced me that an antispasmodic was certainly indicated in essential or spasmodic dysmenorrhea, which conclusions prepared me for a ready acceptance, for trial at least, of the benzyl esters as antispasmodics in place of atropin.

Macht showed by animal experiments and clinical trial that benzyl benzoate had the same antispasmodic action on smooth muscle organs as certain opium alkaloids of the papaverin type, this action being due to the benzyl component of the molecule in these substances; benzyl benzoate, however, having the advantage of being practically nontoxic.

Atropin produces its antispasmodic effect by paralyzing the autonomic nerves supplying unstriped muscle, but the benzyl esters seem to *act only on the muscle cell itself*.

Macht tried benzyl benzoate with beneficial results in gastro-intestinal colic, renal and ureteral spasm, biliary colic, dysmenorrhea, angiopastic conditions and bronchial spasm. He reports 300 cases, in some of which benzyl benzoate was continued over long periods with no dangerous or toxic symptoms.

SIZE OF BENZOATE DOSE

Macht used a 20 per cent. alcoholic solution of the drug flavored with some carminative, giving a dose of from 10 to 30 drops in cold water.

Our first patients complained bitterly of the unpleasantness of this solution, especially the aftertaste, so Professor Hirschfelder made up a 20 per cent. emulsion with acacia in aromatic elixir of eriodictyon which proved a much more pleasant medicine to take.

In dysmenorrhea we did not get quite as complete relief as desired with the dosage recommended by Macht, so we increased the dose to 1 teaspoonful and finally to 2 drams given every two hours. We observed no bad effects from this greatly increased amount, unless an occasional case of vomiting and rarely a feeling of weakness might be so attributed. We used several other preparations, but none of them were as pleasant to take as the emulsion in elixir of eriodictyon.

We shall endeavor in our future study to determine the minimum dose required and the best method of giving it.

4. Novak, Emil: The Atropin Treatment of Dysmenorrhea, J. A. M. A. **64**: 120 (Jan. 9) 1915.
5. Novak, J.: Wien. klin. Wchnschr. **26**: 671, 1913.

SUMMARY REPORT OF CASES

Of forty-three patients there were thirty-five, or 81.3 per cent., who were relieved of pain. In twenty-seven cases, or 62.7 per cent., the pain was completely stopped, and in eight cases, or 18.5 per cent., the suffering was greatly relieved but not entirely eliminated.

In two cases, or 4.6 per cent., the pain was somewhat relieved, but to no great extent.

In six cases, or 13.9 per cent., there was no benefit whatever.

This study will continue as originally intended over a long period so that the volume of cases and repeated trials may give us sufficient basis for final conclusions; but the early results were so striking that we thought a preliminary report should be made in order that the value of benzyl benzoate might be tried out by the profession at large.

We hope that the promise of this drug may lead many physicians to try it and that we may soon have numerous reports, for it is only by an analysis of a very large number of cases that we can determine the real value, and fix the limitations of benzyl benzoate as an antispasmodic in painful menstruation.

PATIENTS' TESTIMONIES

The most striking sidelight encountered was the answer to the question, "Does menstruation interfere with your usual duties?" Thirty-five, or 81.3 per cent., answered in the affirmative. To the question, "Must you go to bed?" twenty-nine, or 67 per cent., said they were compelled to do so, illustrating the economic value to be obtained by the relief of dysmenorrhea, to say nothing of the human suffering.

Thirty-three patients, or 76.7 per cent., had tried other treatment, but only eight, or 24.2 per cent., had obtained any relief. One of these I had dilated with absolutely no relief; however, one dose of benzyl benzoate stopped her pain entirely.

Fifteen cases were completely relieved of pain after one dose (2 teaspoonfuls of a 20 per cent. emulsion); twelve, after two doses at two hour intervals; one required three doses and one four doses and one five doses; those who obtained no relief took from two to six doses.

Other symptoms, headache, backache, etc., were not uniformly benefited.

The testimony of the patient in a condition like this is the only thing we have to go by in determining its efficacy; therefore a few statements by these young women will not be out of place. One said she could carry on her work with less difficulty and discomfort than usual, saying that "it took away that awfully oppressive feeling, and interference with duties was less in quantity and duration," and her headaches were much relieved.

Another, Patient 7, asserted that she "was relieved entirely after the second dose and was able to eat during the first twenty-four hours," which she had been unable to do for several years.

Patient 13 was a woman, aged 40, with acute gonorrhea accompanied by cramps throughout the pelvis, which had lasted for two weeks. She was completely relieved after one dose.

Patient 16 said that after taking the medicine she "could do a good day's work, and life was worth living."

Patient 20 averred that for the first time she was not compelled to go to bed, and that the usual faintness and weakness were absent.

Patient 29 was one of the few persons not within the class of college women and nurses especially selected for study. She was a forewoman in an iron factory, compelled to be on her feet all day; but after taking the benzyl benzoate she was "able to keep working throughout the menstruation, which had never happened before."

RESULTS IN ESSENTIAL DYSMENORRHEA

We have obtained excellent results in all three of the classes set forth by Block: namely, obstructive, ovarian and vagotonic or spasmodic dysmenorrhea, and we also have had favorable reports in the so-called acquired type due to some demonstrable pelvic pathologic condition and even in the inflammatory type.

However, the most reliable results were obtained in the spasmodic type or essential dysmenorrhea, where benzyl benzoate has a distinct advantage over atropin, on account of its very low toxicity; furthermore, there are no drugs other than atropin and morphin which give so much promise of relief. Morphin we dare not use; and if we have a nontoxic antispasmodic, it should certainly replace atropin, which is not entirely devoid of danger.

To be sure, benzyl benzoate only relieves a symptom and does not get at the underlying cause of painful menstruation; but dysmenorrhea is only a symptom after all, so until we have solved the problem of the etiology of painful menstruation we must continue to aim our shafts at the symptom. Wherever a cause can be found, of course, it should be removed; any pathologic condition of the pelvis must be corrected; but anteflection of the uterus as a real cause of obstruction is very doubtful in spite of the fact that many patients are relieved by dilatation. Far too many cervices are dilated.

Benzyl benzoate should be tried before dilatation or other pelvic operations are advised; and if it eventually proves to have the value it promises, many a woman will be saved an operation and more women will seek relief if surgery is not the only avenue of escape from suffering.

If this drug, in the final analysis, fulfils its promise, the sum of human suffering will be greatly reduced and a great economic asset acquired.

The prescription used is given herewith.

		Gm.
℞	Benzyl benzoate	10
	Mucilage of acacia	5
	Aromatic elixir of eriodictyon	35

Give from one-half to 2 teaspoonfuls, according to necessity.

CONCLUSIONS

1. The cause of dysmenorrhea is still unsettled.
2. The treatment has been unsatisfactory.
3. Antispasmodics are logically indicated, for in spite of doubtful etiology the painful spasm of the uterine muscle is incontrovertible.
4. Benzyl benzoate has an antispasmodic action and is practically nontoxic, which gives it preference over atropin.
5. This series is too small to permit conclusions, but is given for what it may be worth. Of the forty-three cases presented, in 81.3 per cent. the patients were relieved of painful menstruation.
6. Pain was absolutely eliminated in 62.7 per cent.
7. Pain was greatly relieved in 18.5 per cent.
8. Pain was slightly benefited in 4.6 per cent.
9. Pain was not relieved at all in 13.9 per cent.
10. These results, while not conclusive, warrant a thorough test, by the profession, of the value of benzyl benzoate in dysmenorrhea.

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ABSTRACT OF DISCUSSION

DR. EMIL NOVAK, Baltimore: While we do not know the cause of spasmodic dysmenorrhea, it seems fairly certain that the actual pain in these cases is due to spasmodic contraction of the uterine musculature. The logical symptomatic treatment, therefore, is the use of antispasmodic drugs. The two drugs which are most efficacious as antidysmenorrheics are the very two which should not be used, morphin and alcohol. Aside from these two, the drug which has in my hands been most valuable is atropin, to which Dr. Litzenberg has alluded in his paper. The general effect of benzyl benzoate would seem to be similar to that of atropin, and, if it is much less toxic than the latter, it would seem to be preferable to it. Such drug treatment of dysmenorrhea, however, is, after all, only a makeshift, and we should continue our effort to achieve a more rational therapy, which, I am convinced, will be along the lines of organotherapy. In practically all of these cases the uterus is the seat of defective development, in some cases very marked, in other cases slight. It is interesting to note that where the anatomic defect is least conspicuous, that is, in the so-called subpubescent cases, the dysmenorrhea is apt to be most severe, as I emphasized in a paper presented before this section last year. These developmental disorders are undoubtedly due to endocrine disorders which as yet are not well understood, but the problem is sure to be worked out sooner or later. Until this is done, the only course left for us in the management of these cases is the makeshift treatment of drugs, and the remedy advocated by Dr. Litzenberg should, therefore, constitute a valuable addition to our armamentarium.

DR. J. C. LITZENBERG, Minneapolis: I believe with Dr. Novak that we should not shirk treatment just because we have not found the cause of the condition. Neither should the obtaining of relief for pain lead us to relax our efforts to find the cause. Of course, our remedies are makeshifts. We can aim at the symptom because we do not know the cause. The use of epinephrin is along the line of counteracting the ovarian type of dysmenorrhea. The profession generally neglects the ordinary means of treating dysmenorrhea. The superintendent of the University Hospital told me that more than 50 per cent. of the nurses lose their dysmenorrhea when they get on the floors of the hospital. The physical exercise, interest in their work and the hygienic living correct a large part of the difficulty. In the treatment of this condition, physical exercise and hygienic treatment are neglected. The majority of young women do not come for treatment. Many suffer in the privacy of their own homes because of innate modesty or because of their desire to play the game of womanhood bravely. They get a prescription, not a study, and I want to emphasize the idea of study brought out by Dr. Novak. The cases should be classified and treated according to the class in which they may fall. Of course, this is only a theoretical classification, but if they are studied and the hygienic measures alone are used one half of these women would be relieved. In those cases with very great pain, this newly discovered action of a well known substance certainly ought to be used because it is a substitute for three dangerous drugs—morphin, alcohol and atropin.

Child Welfare.—Juvenile courts occasionally have to deal with cases where delinquency is just the result of a spirit of adventure. The child is starved for something that appeals to his imagination. Neither home nor school makes provision for this necessary element in human experience, so the young adventurer seeks it himself on nocturnal journeys.—*School Life* **2**:2 (May 16), 1919.

FATALITIES IN HOSPITALS CAUSED BY PATIENTS FALLING FROM WINDOWS

FROM THE RECORDS OF THE CORONER'S OFFICE, COOK COUNTY, ILLINOIS *

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Fatal results ensuing from patients of hospitals and sanatoriums falling or jumping from windows are of such frequent occurrence in Cook County, Illinois, that the matter is deserving of attention, with a view to ascertaining the causes and providing a remedy. Between the beginning of the year 1907 and the end of 1918, there are forty-nine such deaths recorded in the coroner's office. Thirty-one different hospitals are concerned, and ten of the forty-nine patients so killed were in public institutions, that is, those under the control of the city, county or state.

Twenty hospitals had only one such death each, eight had two, two had three, and in one large hospital there were seven. In the nine years 1907 to 1916 there were twenty-six deaths so recorded, an average of nearly three a year, and the largest number for any one year in that period was five in 1908. Again, in 1916 there were five deaths; in 1917, eight, and in 1918, ten.

MULTIPLE CASES IN CERTAIN HOSPITALS

It is noteworthy from the foregoing that one such death has not prevented repetitions, for in eleven hospitals there have been multiple cases. In large hospitals more than one has occurred in the same year in three instances, and in two others within less than two years. In the last three years there has been a tendency for the number to increase, partly because the hospitals are becoming larger and the number of used beds is steadily growing. Other reasons perhaps are the decrease in the number of interns, nurses and attendants, and a falling off in efficiency, as the results of war activities.

In Table 1 these accidents are grouped according to the situations that seem most prone to lead to such catastrophes. All were adults; thirty-four were men, fifteen were women.

TABLE 1.—STATISTICAL DATA

	No.
Patients in private rooms at time of accident	25
Patients in wards at time of accident	19
Patients with special nurses	8
Patients with attendants present when accident occurred	4
Patients with delirium previous to accident	11
Patients who had previously attempted self violence	5
Patients under mechanical restraint from which they escaped	2
Native-born patients (including Canada)	13
Foreign born patients	24

CONDITIONS AS THEY OBTAIN

The height of the window sills varied from 2 to 5 feet from the floor. In some instances the windows were open, in others closed; and in some cases not only were the windows closed and fastened, but the screens were in place with fixed attachments. The patients then unfastened windows and screens or threw themselves through the glass and screen. With attendants or nurses in charge, they sometimes took advantage of their temporary absence from the room. In one case a male patient held off two interns and two nurses with a chair used as a weapon until he could smash the window and effect his escape. In another instance the attendant's cot was placed in front of the door, but the man made his escape across this cot into the corridor and thence to an open window and a fire escape from which he fell to the ground. Foreigners are much more given to trying to make such escapes from hospitals than the native born, especially when delirious, probably because of the strangeness of their surroundings and the absence of attendants of their own race who speak their language. Two patients made their way to fire escapes, and the accidents occurred in connection with the openings provided for fire emergencies. Three men went to toilet rooms and made their way out of windows in those rooms.

TIME OF OCCURRENCE OF FATALITIES

It is also important that three fifths of these deaths have taken place in the afternoon and the first half of the night. More accidents occurred between the hours of 9 and 10 p. m. than at any other time of the day. It seems fair to relate this to the daily activities of the hospitals. Most of the hospital work is crowded into the forenoon and the early afternoon; there are more nurses on duty; this is the time that the majority of the attending men chose for their rounds; opportunities for escape are remote. On the other hand, after midnight the hospital quiets down and most of the patients are asleep. The external stimuli are reduced to a minimum. Even delirious patients are quieter.

TABLE 2.—CLINICAL DIAGNOSIS OF THE DISEASES FOR WHICH THE PATIENTS WERE HOSPITALIZED

	No.		No.
Alcoholism	9	General paresis	2
Melancholia	5	Puerperium	2
Postoperative delirium	5	Tuberculosis	1
Heart disease	3	Burns	1
Sepsis	3	Prostatic hypertrophy	1
Suicidal mania	5	Epilepsy	1
Pneumonia	4	Varicose ulcer	1
Acute nephritis	2	Old age	1

TYPES OF PATIENTS CONCERNED

In this variety of diseases, two types of patients are prominent: Those in whom there is a tendency to delirium, and those in whom there is some mental derangement or on which discouragement weighs heavily because the prognosis is bad. Patients suffering from influenza and the attendant bronchopneumonia seem particularly liable to mental derangement or delirium which may result disastrously in this way. Delirium tremens and melancholia are also conspicuous.

PREVENTIVE MEASURES

It may be that greater care and especially more aggressive action in the face of emergencies would have prevented some of these accidents. Yet many of them were unavoidable except by removal of access to the windows or the possibility of breaking through them. The use of bars or gratings has been objected to on the ground of its being offensive to the patient or from the standpoint of the practical management of hospital affairs; that is, because of hindrance in the washing of windows, blocking of entrances to fire escapes, and interference with ventilation or the attachment of screens. It is with the improvement of such details of hospital construction that the pre-

* This article was suggested and the statements are authorized by Peter M. Hoffman, coroner.

vention of such deaths will be attained most effectually, and this report is made with the hope that with full realization of the need, serious consideration of such details will be undertaken, for to a large degree such deaths are preventable.

CONCLUSIONS

In view of the facts as stated these conclusions seem justified:

1. A concerted effort should be made toward designing a standard hospital window and screen which would absolutely prevent such accidents from occurring and yet be satisfactory from the mechanical standpoint, as regards convenience in washing, use of fire escape, ventilation and lighting.
2. Nurses and attendants, especially those on duty during the afternoon and the first half of the night, should be continually warned of the possibility of such accidents occurring and should be prepared to act quickly and wisely in emergencies.
3. Every toilet room used by patients should be protected by bars or gratings across the windows.
4. Special precautions should be taken not only as regards those who are actually delirious but also with respect to others who from the nature of their sickness may become delirious.
5. With regard to foreigners as patients an effort should be made to have with them, from time to time, if not regular attendants, at least others who speak their language.

MASTOIDECTOMY

POSTOPERATIVE TREATMENT BY USE OF SURGICAL SOLUTION OF CHLORINATED SODA AND MODIFICATION NECESSARY TO SECURE THE BEST RESULTS *

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This paper is not given as an original contribution, but as an adaptation of the Carrel-Dakin treatment to postoperative mastoid wounds.

There are several methods of closing the wound after a mastoidectomy. This very fact is evidence that we have not as yet an entirely satisfactory method, and I am taking the liberty of presenting this method to the section in the hope that it or some modification of it may aid in a solution of our difficulties.

The ideal we are striving for is for a method that will fulfil the following conditions:

1. The maximum safety for the patient.
2. The minimum time of convalescence.
3. The minimum deformity.

AUTHOR'S METHOD

In order that any method of closing the mastoid wound may be uniformly successful, a thorough mastoidectomy must be done. Considering now that this operation has been done, a Carrel Dakin tube is placed in the excavated mastoid cavity, starting at the tip of the mastoid and having its exit at the upper angle of the wound. A second tube is adjusted so that it lies in the opening of the antrum and has its exit in the lower angle of the wound. These tubes are brought forward and upward and fastened with a strip of adhesive plaster to a point on the temporal region of the forehead. The wound is closed with the usual catgut sutures, care being taken to carry them through all the layers of tissue. It is well not to place the stitches closer than three-sixteenths inch to each angle of the wound in order that a little space may be left for drainage around each tube. This precaution adds greatly to the comfort of the patient at the time of irrigation. A small sponge is placed directly over the mastoid cavity and pressed down firmly so as to obliterate as much dead space as possible. A cotton pack about 8 inches square enclosed in gauze is placed over the ear, and the head is bandaged in the usual way. It is very essential for the comfort of the patient that the cotton pack be sufficiently thick to absorb all the moisture from the irrigations. In applying the bandage, from one-half inch to 2 inches of the tubing is left free. These ends are wrapped in sterile gauze, and care should be taken that they be kept sterile.

Irrigations are begun at once with a properly prepared and carefully titrated surgical solution of chlorinated soda (Carrel-Dakin solution) about 1 ounce to each tube every two hours. The dressings are replaced every twenty-four hours. The condition of the wound and discharge governs the frequency and amount of solution to be used during the ensuing twenty-four hours. Ordinarily no change is made in the orders for the first two days. After this the irrigation is continued every two hours during the day, but the night period is extended to four hours. As the secretion decreases, the frequency of irrigation is diminished. Usually in from four to eight days the wound is sterile. If one has access to a laboratory, this can be ascertained by removing one of the tubes and taking a culture by the ordinary method with a platinum loop. If the laboratory is not available, one will have to use his judgment and be guided by the appearance of the wound, and the amount and character of the secretion. The latter when sterile is of a serous nature and should only slightly stain the dressing. I have frequently found it unnecessary to retain both tubes longer than three days. The upper tube was then removed, the lower being retained as it better facilitated drainage. In some cases after four or five days the secretion instead of diminishing became more or less profuse and of a thick, slimy consistency and brownish color. When this occurred, I removed both tubes, cleansed them thoroughly, resterilized, and before reintroducing them thoroughly cleansed the wound with a hot saturated solution of boric acid or hydrogen peroxid. The tubes were then introduced to their original positions and a solution of mercuric chlorid 1:5,000 used in the same manner as the Carrel-Dakin for a twenty-four hour period. In some cases it was necessary to repeat the mercuric chlorid for two or three twenty-four hour periods. When using the mercuric chlorid I always protect the skin by covering it with a layer of gauze saturated with zinc oxid ointment. This protection was necessary also in some cases as a protection from the Carrel-Dakin solution.

In performing the operation we found it an advantage not to extend the incision upward into the temporal muscle. In those cases in which the temporal muscle was injured, there was liable to be some edema over that area.

Following the removal of the tubes, in cases in which there has been a large mastoid there is sometimes an

* Read before the Section on Laryngology, Otology and Rhinology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

accumulation of fluid. When this occurred, we thought it was an advantage to cleanse the cavity once daily with a hot saturated solution of boric acid.

The irrigation with the Carrel-Dakin solution had one advantage which we had not anticipated. The solution passed through the antrum into the middle ear and out through the membrana tympani, thus cleansing and sterilizing this tract.

The stitches were usually removed on the sixth day. In order that the cavity may not be infected by extraneous bacteria, it is necessary that the nurse exercise great care in her asepsis when giving the irrigations.

RESULTS

In a series of fifty cases in which we kept accurate data in the University of Nebraska Red Cross Base Hospital 49, Allerey Hospital Center, France, the average time in which the wound became sterile and the tubes could be removed was 9.35 days. All secretions had ceased and the wound was entirely healed in most of these cases by the fourteenth day, and none longer than the eighteenth day. The shortest time in which the tubes were removed was four days and the longest time was eighteen days. The discharge from the external auditory canal ceased in from one to twenty-one days.

COMPLICATIONS

One patient had marked swelling, and the stitches were removed on the second day. This was an early case in the series and did not have sufficient irrigation.

One patient developed infection of the neck below the mastoid.

ADVANTAGES

The principal advantages this mode of treatment has are:

1. It enables the operator to close his wound and still feel that he has as perfect drainage as it is possible to secure.
2. Exposure of the sinus or dura is no contraindication to closing the wound.
3. The ultimate result is a smooth, clean scar without depression.

ABSTRACT OF DISCUSSSION

Dr. Ewing W. Day, Pittsburgh: At different times different methods have been brought forth to produce rapid healing of the mastoid. We all remember the blood clot. Its failure was the inability to obtain a sterile cavity. Anything that will produce a sterile cavity will bring quicker healing. The surgical solution of chlorinated soda is one of the best. Shortly after this solution was introduced in Europe, the Carnegie Steel Company sent Dr. W. O'Neil Sherman, the chief surgeon of that company, to Europe to study this method. On his return we tried it out in the Eye and Ear Hospital to a considerable extent and found it to be surer and quicker than any other. Some patients complain of the irritating influence of the solution on the skin, and especially the external auditory canal, for some of the solution will get through in spite of gauze shields and ointments. Since my return home I have adopted a slightly different procedure. I never like to quite close a mastoid until it is sterile, although I do have free drainage. Instead of using the surgical solution of chlorinated soda immediately after an operation I pack the wound rather tightly with a piece of gauze which has been saturated in a 3.5 per cent. tincture of iodin. The next morning I commence cleansing the wound every four hours, using a good green soap and washing it out and drying it thoroughly and redressing it. Do this every four hours during the day. Beginning on the third day, I take cultures to see when the wound is sterile. As soon as the wound is sterile, close it by freshening the edges of the wound, which can be done quickly, elevate the flaps a little and let the blood run in; close it with metal clamps, and your work is practically done. Within a few days I send the patient home, and he reports back in one week. I have had complete closure and practically healing of the wound in fourteen days. It is utilizing the blood clot, which I formerly opposed, but using it in a sterile cavity. You can follow the same procedure if you do not want to do the primary suture. You can do it without cocain, the patient does not mind it, and the results have been good in my cases.

Dr. Arthur C. Stokes, Omaha: I was chief of the surgical service in Base Hospital No. 49 during the time in which Dr. Potts was engaged in this work at Allerey, France. His results seemed to be phenomenal. I had been accustomed in my general observation to see cases go on weeks discharging and granulating and finally healing with large and ugly scars. These cases did not do this. The tubes were put in as the doctor has described and the wound closed. It healed in three or four days and the patients were walking around the hospital. One point the doctor did not mention, and that is, that instead of using petrolatum for his protecting ointment around the wound, he used zinc oxid on gauze. This seemed to be an improvement on the ordinary method of protecting the skin around the wound. It stuck to the wound better and protected it better. The surgical solution of chlorinated soda certainly does excoriate the skin at times. Of course, the nearer neutral the titration, the less frequently excoriation follows, but the value of the solution, if it has any value, depends on the free chlorin present, and that is bound to irritate at times. We learned that if the solution is of any value at all—I am not discussing that question—it is in cases of acute wounds. I am opposed to packing all kinds of wounds, everywhere and anywhere, with tight gauze, where there is pus, and this method makes packing unnecessary. To pack a wound with pus in it seems to be a bad proposition. In general surgery we do not pack infected wounds with gauze. It has been hard for surgeons to learn that gauze does not drain pus. We have gone through that until we know it does not. One more point is the use of mercuric chlorid. It is interesting to see how after using surgical solution of chlorinated soda for a time and then changing to mercuric chlorid, there was in some cases a very sudden reduction in the bacteriologic count. There must then be certain organisms or relations in wounds in which mercuric chlorid is of more value than surgical solution of chlorinated soda.

Dr. Francis P. Emerson, Boston: I have been very much interested in this paper. I hoped that in our surgical mastoid work we were getting away from complicated methods to a more simple technic. In any surgical procedure there should be some definite reason for every step we take, and in the mastoid operation the first indication is the removal of diseased tissue and drainage. After you have done a complete and thorough mastoid operation, you pack the cavity to stop bleeding and set up reaction. In the procedure which I have adopted, and which is used in the hospital with which I am connected, we rarely disturb the packing until the fourth day. At the end of the fourth day the packing is removed. After removing the packing we want to keep control of the middle ear until it is dry. A simple drain carried up to the aditus will control the middle ear until it is dry. Then after the middle ear is dry and the aditus has been walled off, there is no danger whatever in letting the whole mastoid cavity close by what you might call a modified blood clot method. In the last series of seven cases in which I operated, the middle ear was dry, with the exception of one case, on the fourth day. That means that the operation has been radical enough to remove the diseased tissue, and that the mastoid cavity is free from necrotic areas. There is no one principle in surgery more important than to let Nature alone when she is doing all right, and to wipe out a cavity when it is granulating normally is bad practice; to irrigate a cavity when it is granulating normally is also bad practice. In fact, to do anything that is meddlesome when the cavity is in good condition is bad surgery. If you have excessive granulations,

remove them; if you have a septic wound, use surgical solution of chlorinated soda; nothing is better. But if you have done a radical thorough operation and the middle ear is dry, let it alone, unless you know that there is a septic cavity, and if so, the use of the surgical solution of chlorinated soda is one of the best measures that we have at our command.

DR. C. J. SWAN, Evanston, Ill.: In our experience at Camp Wheeler, those mastoids which where found at the operation to contain much pus, where the necrotic process had gone far, were those that healed the most readily. Cases in which operation was done very early and which were infected with streptococci were the cases that continued to suppurate and were slow to heal. They were operated early, the necrotic process had not been delimited, and the patient apparently had not set up a resistance to the infection. On the other hand, cases that had gone far and that we did not see until they had had the mastoid infection for weeks, healed very quickly. We tried the Carrel treatment in ten cases that were sent directly from the operating room to the Carrel treatment ward. We controlled these cases by ten other cases in which we used a treatment similar to the one Dr. Emerson described. We sewed the wound primarily down to about two-thirds of the way with three sets of stitches, one through the pericranium, one through the subcutaneous tissue and then a skin suture. We packed the cavity and left the packing in for three or four days, then removed it, and maybe packed it once or twice more. Healing was accomplished in the favorable cases in a little over two weeks. We had one case, a very necrotic case, that healed in ten days. With the Carrel treatment we had more scar, and the average time of healing was about a week longer. The cases that were suppurating very much did better with this treatment. The favorable cases did better with the simple treatment. In other words, there is no one method of treatment applicable to all cases. Each case should be treated according to the condition presented.

DR. WENDELL C. PHILLIPS, New York: I have been very much impressed with the aggressive work that has been accomplished by Dr. Potts and by those who have taken part in the discussion. But I think there are one or two words of caution that may well be mentioned at this point. Evidently in the case of those who have fallen into the hands of the men who have been doing this operation, their "lines have fallen in pleasant places," because the experiences that some of us have in hospital work in great cities would not bear out the testimony that has been given here today. If the method of treatment that the surgical solution of chlorinated soda offers means the results given in this paper, there is no question that its adoption will be warranted. I do think, however, that if you use it in the ordinary run of cases seen in the large hospitals, the results could not possibly be the same. The word of caution I wish to give is this, that unless the discharge from the external auditory canal ceases entirely after a few hours or days of use of the Carrel treatment, the case should not be reported cured even if the postauricular wound is healed, for otherwise a recurrence may be expected. Closing the posterior wound before the discharge has ceased from the external auditory canal means trouble. A case is cured only when the mastoid is healed and when the discharge has ceased from the external auditory canal, and if the cases reported at this time have not had that course they are not cured. In the care and treatment of patients, a dressing every four hours may be very easy where there are not very many mastoid patients to care for, but if you take them in a hospital where you have from forty to eighty such patients under treatment all the time, postoperative cases, and you dress them every four hours, it will require an increase in the hospital staff, because you cannot trust the nurses to make these dressings, and I can see where there will be an enormous amount of labor.

DR. EDWARD J. BERNSTEIN, Detroit: I would like to add a word of caution about the use of iodin gauze. I used it in one case and in a very short time it set up a meningeal irritation which was not relieved until I took out the gauze. It seems to me we ought to be very cautious about putting iodin solution into mastoid wounds.

DR. JOHN B. POTTS, Omaha: In this series of cases we had an acute *Streptococcus hemolyticus* infection following influenza. We had some cases of fracture of the mastoid following accidents with high explosives. Three cases that had had an old otitis media and which was stirred up again, and we had cases that had been dragging along for weeks and even months. The boys at the front did not stop fighting for a little thing like a running ear; they had to be really hurt. It was very interesting to see how the different cases responded to treatment. The time in which we could get an ear sterile depended somewhat on how long it had been discharging. In some old cases the discharge did not cease as promptly as in acute cases. In answer to Dr. Phillips, I think his criticism is very just. You will find, however, as you develop your technic that you can instruct one or two nurses to carry out this dressing, and it becomes a simple matter. The dressing is only done once in twenty-four hours. In other words, the doctor or intern only sees the patient once in twenty-four hours. The introduction of the surgical solution of chlorinated soda can be done rapidly by the nurse if she is careful. She can go about with a sterile syringe, we use a little gynecologist's syringe, the kind that were shipped in great quantities to France, and it works very well. The dressings do not take really as much time as when done in the other way.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

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Sodium Dioxide, Dental-R. and H.—A nonproprietary brand of sodium peroxide complying with the N. N. R. standards, but containing at least 90 per cent. of sodium peroxide, and iron not to exceed 0.006 per cent.

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FATTY ACIDS AS FOODS

When the world war threatened the integrity of the food supplies of a large part of the nations more intimately concerned in the great conflict, both physiologists and economists began to ask what limits of restriction could safely be endured. It is doubtful whether the nutritive needs of man have ever before been considered so critically as they have been since 1914. Proteins and fats and other nutritive ingredients began to be estimated in calories and grams with profound regard for economy of consumption and prevention of unnecessary waste. National committees and international commissions devoted their best energies to the determination of what the safe minima of food allowance for various classes of the populations under consideration might be. It was a time when waste might mean defeat.

With respect to the human requirement for protein there is a considerable body of evidence of both a statistical and experimental character, sufficient at least to serve as a reasonably safe guide to the limits of husbanding this foodstuff. Much less is known with regard to the absolute needs for fats in the physiologic economy of man. Older "standards" regarded about 50 grams, or somewhat less than two ounces a day, as a possible minimum. The Interallied Scientific Commission on Alimentation, at its second meeting at Rome in April, 1918, fixed 75 grams (2⅝ ounces) as a desirable daily minimum ration of fat.[1]

In many of the countries the fat supply became unduly reduced because of two factors which did not militate against it in peace time. The interference with free shipping prevented importations of fat in places where the stock was normally replenished from elsewhere. Then, fats formerly used as foods were diverted to the preparation of glycerol for the manufacture of explosives. What this meant in England can now be authentically stated from a report of the Royal Society's Food (War) Committee.[2] It is admitted that in the last months of 1917 the marked shortage in the supply of fats led to a reduction of the fat ration per week per person to about 3⅛ ounces (as derived from butter, margarin and lard), while the limitation in the meat ration reduced the fat supplied in this way to some 3½ ounces or less. At most, therefore, even allowing for fat in milk and other foodstuffs, probably only about 7 or 8 ounces per week were available.

When fats are chemically disintegrated by hydrolysis to prepare glycerol, fatty acids are formed as a by-product. The reaction is comparable to what occurs in the digestive hydrolysis of fats in the alimentary tract. In the latter case the absorption of the products of digestive cleavage is followed by a resynthesis of fat, as is indicated by the appearance of neutral fats only in the thoracic duct lymph which carries the products from the alimentary epithelium to the general circulation. It has long been known that fatty acids can be absorbed and utilized, i. e., resynthesized into neutral glycerids or fats even when no glycerol is actually available in the digestive tract. The physiologist I. Munk[3] clearly demonstrated this fact on man as early as 1890. Not long ago Lyman[4] demonstrated, with animals, a utilization value of 82 per cent. for palmitic acid fed as such, in contrast with from 95 to 97 per cent. for the fat glyceryl palmitate and for lard fats. Lyman also demonstrated that after feeding free palmitic acid, glyceryl palmitate, or ethyl palmitate to white rats, essentially the same kind of fat is stored in the fat depots, and it consists largely of tripalmitin. Neither free palmitic acid nor ethyl palmitate in appreciable amounts is deposited unchanged in the fat depots.

In view of the foregoing facts the London Royal Society's experts seriously considered the possibility of applying to nutritive purposes the great stocks of fatty acids liberated from fats in the manufacture of explosives. According to their report it was estimated that some 100,000 tons a year of these fatty acids could be set free for the purpose, if they were found to be suitable. This would mean a substantial gain to the fat supply of the nation, which in prewar times was estimated at 1,651,000 tons, an amount far above the actual requirement; for fat more than any other food constituent was extensively wasted. Even if the products could not be used by man, so the experts argued, it was possible that they might be used by animals, and thus fat suitable for human food would be set free.

The new war-time human experiments, conducted at the University of Glasgow, at King's College and at the Cancer Hospital in London, by well-known physiologists,[2] leave no doubt that fatty acids can be used as a source of fat in the diet of man. The fatty acids of hardened whale oil in amounts of 36 gm. per diem, or more than one third of the usual intake of fat, were

1. Food and the War, U. S. Food Administration, Boston, Houghton, Mifflin Company, 1918, p. 111.
2. Food (War Committee of the Royal Society: Fats and Fatty Acids as Food), J. Physiol. **52**: 328, 1919.
3. Munk, I.: Arch. f. Anat. u. Physiol., 1890, pp. 376, 581.
4. Lyman, J. F.: Metabolism of Fat, I, Utilization of Palmitic Acid, Glyceryl Palmitate, and Ethyl Palmitate by the Dog, J. Biol. Chem. **32**: 7, 1917; II, The Effect of Feeding Free Palmitic Acid, Glyceryl Palmitate, and Ethyl Palmitate on the Depot Fat in the White Rat, ibid., p. 13.

as thoroughly digested and absorbed as was the hardened oil from which they were prepared. Their administration for a period of six days caused no disturbance in the absorption of the other constituents of the food, as is indicated by the nitrogen and energy balances, nor any other disturbances in health.

In the more recent discussions of the value of fats in the dietary, some emphasis has generally been placed on the presence of a fat-soluble accessory factor or vitamin (fat-soluble A) in certain of the edible fats in contrast with other food fats, notably those from vegetable sources. It must not be assumed that fatty acids obtained as the result of drastic chemical processes can supply such factors. Fats or fatty acids may have a high calory value, be thoroughly digestible and highly palatable, without having the unique nutritive value that attaches to the vitamin-containing fats of milk and egg. Drummond[5] looks on the extensive use of vitamin-free fats as a national menace. He writes:

> One result of war conditions has been the disappearance, to a large extent, of the old prejudice against margarine. This, however, is a circumstance that is not free from danger to the community, especially as the present day margarines, though in some cases of satisfactory flavor, are mainly made of vegetable fats. It should in the future be compulsory that all margarines should contain a sufficient amount, either of real butter, of egg-yolk, or of oleo-oil (beef fat) in order that they may be more adequate sources of the fat-soluble accessory factor. Otherwise serious damage to the health of the population, particularly of young children, will be the inevitable result.

It must be remembered, however, that the fat-soluble vitamin has been demonstrated to occur in green leaves and certain animal tissues which enter into the human dietary.[6] Without consideration of the diet as a whole, it may be premature to advise drastic procedures against otherwise wholesome fats merely because they cannot entirely replace milk or egg fats. In any event, however, the true composition of so-called butter substitutes ought to be clearly indicated and understood, so that responsibility for their use as nutrients may be founded on physiologic intelligence.

THE TREATMENT OF LEPROSY

For many ages, leprosy has been symbolic of the maximum of physical affliction, being regarded as the most abhorrent and hopeless of diseases. Even physicians have at times been guilty of a cruel and unscientific attitude toward the disease or, more particularly, toward the social problems that confront the leper as a result of the grotesquely distorted view of the disease held by the public at large, a view doubtless gained from biblical reading. Therefore, to record progress in the therapy of leprosy is especially gratifying. The progress has resulted from the convergence of two lines of clinical research, one wholly empiric, the other resting on an immunologic basis. Both had in the past given some evidence of effectiveness in cases of leprosy.

Chaulmoogra oil (oleum gynocardiae, from the seeds of *Gynocardia odorata* and several varieties of *Hydnocarpus*), gurjun oil (gurjun balsam, from *Dipterocarpus laevis*) and cashew-nut oil (from *Anacardium occidentale*) have been used both internally and externally for a long time, chaulmoogra oil being in greatest favor. The internal use of the oils has been limited by the gastro-intestinal disturbances caused by the large doses required by such medication, if it is to be effective. To overcome this, a number of modifications have been suggested. Unna, for instance, used the sodium soap of gynocardic acid (isolated from chaulmoogra oil) in the form of a coated pill for internal medication. By combined internal and external medication, improvement in a number of cases was noted.

Later Deyke prepared a neutral fat obtained from a common streptothrix that had been isolated from a leproma. This substance was used for subcutaneous inoculation, and gave at times a considerable local as well as constitutional reaction. The effect on the leprous nodules was, however, quite manifest, resembling in a measure the effect of tuberculin on the tubercle. Its use was, as a matter of fact, extended to the treatment of tuberculosis, and formed part of the method of immunization advocated by Deyke and Much.

Now we find that the subcutaneous method of medication has been applied to a sodium salt of gynocardic acid, the results of which treatment, as described by Muir[1] and Rogers,[2] are most encouraging. Muir has treated fifty cases by the subcutaneous and intravenous method, in most of which definite improvement was noted. In Rogers' series, thirteen out of fourteen patients made steady progress toward recovery, and in several cases apparently the disease was completely arrested and clinically cured. The use of sodium gynocardate A is interfered with by a rather severe local reaction on subcutaneous injection and injury to the veins on intravenous use, so that both Rogers and Muir have substituted a sodium salt of the fatty acids of cod liver oil, with seemingly equally good results, so far as the therapeutic effect can be judged in a relatively short period of time.

Just what mechanism is involved in the beneficial action that is said to follow the injection of these unsaturated fatty acids is not clear, although a number of suggestive possibilities present themselves. In both leprosy and tuberculosis we are dealing with infecting organisms that are rich in fats and lipoids (from 35 to 45 per cent. of the dried weight of the tubercle bacillus

5. Drummond, J. C.: The Fat-Soluble Accessory, J. Physiol. **52**: 344, 1919.
6. McCollum, E. V.: The Newer Knowledge of Nutrition, 1919. Osborne, T. B., and Mendel, L. B.: The Vitamines in Green Foods, J. Biol. Chem. **37**: 187, 1919.

1. Muir, E.: Treatment of Lepers with Gynocardate of Soda A, Indian M. Gaz. **54**: 130 (April) 1919.
2. Rogers L.: Sodium Hydnocarpate (Sodium Gynocardate A) and Trial of Sodium Morrhuate in Leprosy, Indian M. Gaz. **54**: 165 (May) 1919.

consists of neutral fat, fatty acids, waxes and lipoids); both live in close adaptation to the tissues of the host, and the tissues react to them rather as they do to foreign bodies than to direct acute intoxication. These fat and lipoid rich bacteria are probably susceptible to the action of fat-splitting enzymes of the body, and we must consider the possibility that the therapeutic injections may stimulate this lipolytic activity of the tissues.

Closely related is the effect on the lymphocytes, which contain lipase in considerable amount. The injection of fats and lipoids is said to be followed by a distinct lymphocytosis. Is the beneficial effect brought about by these cells as intermediaries? Or are we concerned with a more or less specific fat immunization proper, in the sense that Deyke suggested, or such as has been studied more recently by Warden? According to this conception, fats and fatty acids and lipoids in a variety of combinations are capable of acting in a specific antigenic capacity.

While the direct bactericidal action of the unsaturated fatty acids and their soaps cannot be excluded, nevertheless it seems more probable that their effect partakes rather of the nature of an "ergotropie," the term coined by von Groer to express the therapeutic effect of substances which, when injected in infectious diseases, act by altering the reactivity of the host rather than by acting directly on the invading parasite.

THE COLON AND SALINE CATHARSIS

The mode of action of purgative salts is not as well understood as it ought to be. Certain more recent discoveries of the action of substances used as laxatives have tended to confuse the situation still more. For example, magnesium sulphate (Epsom salt) exhibits a striking anesthetic effect when introduced into the circulation. Hence more than one physician has asked himself why such inhibition of the nervous functions and muscular relaxation do not manifest themselves in any of the multitudes of instances in which this chemical compound is ingested in order to empty the bowel. Again, if the laxative action of Epsom and Glauber's salt, of magnesium citrate and Rochelle salt, is a "salt effect," why is it missed when common salt—sodium chlorid—is employed instead?

To these queries the investigation of the actual behavior of the different salts within the lumen of the bowel gives an intelligent answer. The saline laxatives represented by Epsom and Glauber's salts are not readily absorbed. The intestinal wall is not permeable to them, but behaves—to use the designation of the physical chemist—as a semipermeable membrane. Sodium chlorid and water can readily traverse the intestinal epithelium in either direction; in fact, they invariably tend to do so in a way that will promote osmotic equilibrium on the two sides of the intestinal wall. Sulphates fail to pass in the same manner; they accumulate in the bowel; water is retained therein or actually enters until the osmotic pressure practically equals that of the blood; and the distention of the intestine by the fluid volume is an immediate provocative of evacuation.

Most of this has long been well demonstrated though little appreciated. Recent studies by Goldschmidt and Dayton,[1] in the Hunterian Laboratory of Pathology at the Johns Hopkins University, have emphasized anew this characteristic behavior of the colon. Solutions of sodium chlorid introduced into the colon above or below the concentration level of this salt in the blood come into a chlorid partial pressure equilibrium with the blood. There is an attempt at total osmotic pressure equilibrium between the colon contents and the blood. The behavior of chlorids in traversing freely in either direction indicates that the colon is not characterized by a strictly one-sided permeability.

On the other hand, the colon behaves toward solutions of sodium sulphate essentially as does a semipermeable membrane. Magnesium sulphate shows even less absorption from the colon than sodium sulphate. From hypotonic solutions water is absorbed until the osmotic pressure increases to that of the blood. With hypertonic solution the volume increases through absorption of water until the same blood level is attained. In other words, "there is free passage of water with practically no diffusion of sulphate."

The Baltimore investigators point out that the failure of absorption of Epsom and Glauber's salts from the colon emphasizes the specific importance of the large intestine in saline catharsis. Hay,[2] to whom we owe classic researches in this field, supposed that sulphate was absorbed from the small intestine and then reexcreted into the large bowel, thereby explaining its undoubted accumulation in the colon. Goldschmidt and Dayton,[1] on the other hand, believe that the salt in the latter portion of the intestine is derived directly from the small intestine. Provided the cathartic salt reaches the colon in sufficient amount, they argue, so that by osmotic interchange between the blood and the colon contents enough fluid is introduced to increase the bulk and fluidity of the colon contents, catharsis will be assured. This might occur independent of the volume of fluid reaching the colon from the small intestine. The determining factor will be the amount of the salt which reaches the large intestine;

1. Goldschmidt, S., and Dayton, A. B.: Studies in the Mechanism of Absorption from the Intestine, I, The Colon: A Contribution to the One-Sided Permeability of the Intestinal Wall to Chlorides, Am. J. Physiol. **43**: 419, 1919; II, The Colon: On the Passage of Fluid in Two Directions Through the Intestinal Wall, ibid., p. 433; III, The Colon: The Osmotic Pressure Equilibrium Between the Intestinal Contents and the Blood, ibid., p. 440; IV, The Colon: The Behavior of Sodium and Magnesium Sulphate Solutions, ibid., p. 450; V, The Colon: The Effect of Sodium Sulphate upon the Absorption of Sodium Chloride when the Salts are Introduced Simultaneously into the Intestine, ibid., p. 459.

2. Hay: J. Physiol. and Anat. **16**: 243, 391, 568, 1882; ibid., **17**: 62, 222, 405, 1883; Brit. M. J., p. 1204, 1882.

and since little is absorbed, this will be cumulative. Furthermore, once enough of an isotonic or hypertonic solution has reached the large intestine to increase the bulk and fluidity of the colon contents, catharsis is assured; for Goldschmidt and Dayton have shown that only a small quantity of the salt is absorbed in ten hours.

THE RELATION OF FORAGE POISONING TO BOTULISM

According to recent observations summarized by Dickson,[1] the variety of bacterial food poisoning known as botulism is not unusual in this country, being relatively common in the Pacific coast states. It has been found, further, that meat and meat products are by no means, as once believed, the exclusive, if even the main, source of the poison in question, which may occur also in canned vegetables and fruits, being produced by the growth of the anaerobic *B. botulinus*. The normal habitat of this bacillus is not known, and the exact manner in which vegetables and other food substances become contaminated is still a mystery. Botulism is not limited to human beings; it is a frequent cause of so-called limber-neck in the domestic fowl, and it may be responsible for certain forms of paralysis in various domestic animals. The toxic agent, which is a true toxin in the strict immunologic sense and consequently neutralizable by specific antitoxin, appears to have a rather wide range of action, and is peculiar in that it resists digestion and is absorbed from the digestive tract.

It has been suggested by Dickson that the occurrence of limber-neck in fowls eating refuse from the kitchen may prove of great diagnostic value in cases of suspected poisoning of human beings. The most recent development in connection with botulism is the demonstration that, in certain instances at least, outbreaks of so-called forage poisoning ("epidemic meningitis," "staggers," etc.) in horses and mules are in reality due to the toxins of *B. botulinus* or of very closely related bacilli. As long ago as 1901, Leonard Pearson pointed out the clinical analogy between forage poisoning in domestic animals and botulism in man, and more recently actual botulism seems to have been produced experimentally in horses and in donkeys.[2] Then Graham and his co-workers at the Kentucky Agricultural Experiment Station[3] became interested in the question, and started investigations in forage poisoning that appear to be yielding results of great interest and value. In connection with a sporadic outbreak of forage poisoning from oat hay, these workers recovered a bacillus like *B. botulinus* in growth, form and action in animals. Botulinus antitoxin—the serum of goats, sheep or cattle immunized with *B. botulinus* and its products—protected horses, mules and guinea-pigs against the forage bacillus and against sterile filtrates of both cultures of this bacillus which otherwise would produce symptoms that were indistinguishable from those produced by the typical botulinus bacillus. This work, consequently, goes far to establish definitely that anaerobic bacilli like *B. botulinus* may cause the condition known as forage poisoning. In another outbreak, this time in Illinois, Graham and Brueckner[4] recovered a similar bacillus from the incriminated corn ensilage. In this case, they were able to demonstrate that antibotulinus serum agglutinated the ensilage bacillus and protected animals when injected with the bacillus in otherwise fatal doses, while the serum of animals immunized with the ensilage bacillus, in its turn, had agglutinative and protective effects with respect to the typical botulinus bacillus.

Close comparative studies of the different strains of these toxin-producing bacilli from different sources do not seem to have been made as yet; but the fact that they appear to be susceptible to the actions of the same immune serums indicates clearly a very close relationship if not complete identity. The symptoms of poisoning in horses and other animals strongly resemble those of botulism. After a variable incubation period the animals develop a general depression, progressive muscular weakness, incoordination, paresis of the pharyngeal and intestinal walls, impairment of vision, and ptyalism. The only apparent real difference from the symptoms of botulism is that in man there is, as a rule, extreme dryness of the mouth, pharynx and nose; occasionally, however, the amount of saliva is increased, according to Dickson. Many questions are still unsolved: the mechanism of the production of the symptoms and how the toxin causes paralysis, impaired vision, etc., are as obscure as ever; the lesions, particularly in horses and other animals, have not been studied thoroughly; and the preventive and curative value of specific antitoxic serum in man and in animals remains to be determined. It is of special interest that in a desperate case of botulism described by McCaskey[5] in his recent report of an outbreak at Decatur, Ind., recovery followed the injection of antibotulinus serum prepared by Graham,[6] now of the University of Illinois. The free use of such serum in cases of botulism is a perfectly logical procedure warranted by the unequivocal results of experiments. For the present we must look to state and other experiment stations for antibotulinus serum, which is not yet an article of commerce. McCaskey urges that the serum should be

1. Dickson, E. C.: Botulism: A Clinical and Experimental Study, Monograph 7, Rockefeller Institute for Medical Research, 1918.

2. Curfman, G. H.: Botulism, Colorado M. J. **14**: 35 (Feb.) 1917. Buckley, J. S., and Shippen, L. P.: Preliminary Report on the Relation of Anaerobic Organisms to Forage Poisoning, J. Am. Vet. Assn. **1**: 809, 1917.

3. Graham, Robert; Brueckner, A. L., and Pontius, R. L.: Studies in Forage Poisoning, Bulls. 207 and 208, Kentucky Agric. Expt. Station, 1917.

4. Graham, Robert, and Brueckner, A. L.: Studies in Forage Poisoning, J. Bacteriol. **4**: 1 (Jan.) 1919.

5. McCaskey, G. W.: Bacillus Botulinus Poisoning; with a Report of Seven Cases, Four of Which Proved Fatal, Am. J. M. Sc. **158**: 57 (July) 1919.

6. Compare Footnotes 3 and 4.

used early in suspicious food poisoning, as then "it should be entirely possible to prevent such tragedies" as the one he records. The hope arises that the demonstration of the relationship of forage poisoning to botulism may result in available supplies of potent antibotulinus serum for man and beast.

NUTRITION AND SEX EXPRESSION

The world-wide campaigns for the control of venereal disease have brought the social relations of individuals and their sex expression into a peculiar prominence. Experience has shown the necessity of a changed attitude toward the problems of the sexual life. A few years ago no group of persons outside of the medical profession treated the subject in a frank manner; but today the champions of so-called social prophylaxis are ready to adopt a straightforward view in relation to the sexual instincts and to plan their campaigns for betterment with due consideration to physiologic and environmental factors as well as to purely moral or ethical tenets. A recent writer[1] has remarked that the physical, the mental and the moral being is the result of heredity, environment and education. Science, he adds, does not take cognizance of sentiment, for that is the product of culture, and they who permit themselves to be governed by a sentimentality that ignores or conflicts with the established inexorable laws of nature must inevitably meet disaster.

A sane hygiene of sex must strive to learn what these "inexorable laws" of nature are. It is generally recognized that sexual emotions can be awakened or intensified by a variety of stimuli which affect the senses. The imagination undoubtedly plays a conspicuous part in many instances; nevertheless, aside from the more purely mental processes the sex expression finds its genesis in no small measure in the contributions of the special senses thereto. Sight and sound and touch enter into the peculiar complex in which physiologic and psychologic factors are mingled to give rise to the unique manifestations of sexual emotion.

Little is known and less has been taught regarding the purely physiologic background of these manifestations. It is understood, or at least assumed in a general way, that disease of the body as a whole may decrease or even abolish the sex expressions; thus, diabetes and extreme obesity are included among causes of sexual impotence. It has been very difficult, however, to secure definite information regarding possible relationships between the emotions of sex and special physical or metabolic functions of the organism. The topic is repulsive to those competent to furnish the facts; and even when they might be secured, introspection and suggestion combine to make them of questionable value for a strictly scientific analysis. An exceptional instance for securing reliable information seems to have been afforded by the investigations of the Boston Nutrition Laboratory of the Carnegie Institution of Washington on the effect of a prolonged restricted diet on human vitality and efficiency.[2]

Editorial reference has already been made in THE JOURNAL to the outcome of these human experiments. Briefly, the basal metabolism of the students living at decidedly reduced weight level brought about by a diet representing from two thirds to one half of their supposed calorific requirement was about 18 per cent. lower per kilogram of body weight than prior to reduction. The systolic and diastolic blood pressures were lowered to about 90 and 65 mm., respectively. The pulse rate showed a marked drop. For example, five of the subjects showed many pulse rates 35 beats or below, and one man gave seven counts at 29 beats per minute. Body temperature, measured rectally, was normal, but the men complained of feeling the cold and wore more clothing. Neuromuscular coordinations presented some decrement; not enough, however, to interfere seriously with the duties of everyday life. There was no falling off in the quality or amount of the scholastic work. Strength tests indicated some decrease, but the normal amount of common physical activity appears to have been maintained. The men were not apparently lacking in vitality, nor were they inefficient. When engaged in vigorous athletics with their fellows, a stranger could not have picked them out.

Information cautiously acquired from the twenty-four young men who may be assumed, because of their training at the International Y. M. C. A. College at Springfield, Mass., to have a sound and wholesome attitude regarding these matters, reveals the circumstance that associated with the physical condition resulting from the low diet there was a diminution in sex activity.[3] It is needless to reiterate here the correlated opinions on which this conclusion was based. Miles[3] has called attention to the fact that, in these undernourished students, decreased sex expression accompanied a diminished rate of basal metabolism; and he ventures to remind us that the sex instinct is commonly stronger in men than in women, who have a lower basal level of metabolism. It is not on this ground illogical, Miles writes, that a lowered metabolism in men might reduce the manifestations of the sex instinct. Nature may require a high metabolic level for purposes of race propagation.

1. Malchow, C. W.: The Sexual Life, St. Louis, C. V. Mosby Company, 1917.

2. Benedict, Miles, Roth and Smith: Human Vitality and Efficiency Under Prolonged Restricted Diet, Pub. 280, Carnegie Institution of Washington, 1918; Benedict, Miles, Roth and Smith: The Effects of a Prolonged Reduced Diet on Twenty-Five College Men, Proc. Nat. Acad. Sc. 4: 149, 1918.

3. Miles, W. R.: The Sex Expression of Men Living on a Lowered Nutritional Level, J. Nerv. & Ment. Dis. 49: 208 (March) 1919.

Miles' conclusion from his most unusual study has a direct interest for medical practice:

> Any dietetic régime which, even though it affects the external appearance and performance of an individual but little, definitely lessens the expression of the sex instinct, causing one sex to take but little interest in the other, would seem to be disadvantageous to the species if indefinitely prolonged and if the instinct made no adjustment thereto. Any general conclusions regarding a lowered nutritional level produced by prolonged reduction in diet may not disregard the effect on the sex instinct or its manifestations. On the other hand, the results clearly indicate a method of treatment for achieving restraint of sexual tendencies in pathologic cases of sexual dissipation.

Current Comment

THE UTILIZATION OF MILK FAT BY INFANTS

The study of the feces is fundamental to the interpretation of the results of infant feeding. Mere inspection of the stools, without a first hand appreciation of the chemical significance of the pictures which they present, has often led to erroneous deductions. Only a few years ago, curdy masses in the feces of the young might have been reported as mucus, casein flocks, or residues of soap, according to the conjecture of the untrained observer. The advent of physiologic chemistry as a part of the clinical routine has helped to establish more rigorous criteria. Haphazard guesses are no longer justified when facilities for chemical control are available. The new point of view—the demand for exact information as to the make-up of the feces—has helped to secure new data of interest in the physiology of digestion during infancy. Not long ago we reported the experience of Holt, Courtney and Fales[1] at the Babies Hospital, New York, who found that the stools of breast-fed infants receiving an average intake of 28 gm. (1 ounce) of fat daily contained not more than 1.1 gm. of this amount. This retention of fat to the extent of 95 per cent. corresponds very favorably with a "coefficient of digestibility" of from 90 to 95 per cent. for fat used in the mixed diet of an adult man. In the infants, the excreted fatty material comprises about half of the dry matter of the entire feces, and consists largely of soaps. Quite similar results have since been recorded for infants fed on modifications of cow's milk.[2] The average proportion of the fat of the diet retained with normal stools was 91 per cent. of the intake. The retention was little lower when the stools were somewhat harder or softer than normal, or were not homogeneous, or contained more or less mucus without being distinctly watery. As the water in the stools increased, the degree of fat retention decreased markedly, reaching in severe diarrhea 58 per cent. of the intake. Hence the digestion by infants of cow's milk and its modifications need not be essentially poorer than is the utilization of the same ingredients of breast milk. The nutritive comparisons belong, perhaps, on a qualitative rather than a quantitative basis.

1. Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: Fat Metabolism of Infants and Young Children, I, Fat in the Stools of Breast-Fed Infants, Am. J. Dis. Child. **17**: 241 (April) 1919; Fat Absorption in Infancy, editorial, J. A. M. A. **73**: 1848 (June 21) 1919.
2. Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: Fat Metabolism of Infants and Young Children, II, Fat in the Stools of Infants Fed on Modifications of Cow's Milk, Am. J. Dis. Child. **17**: 423 (June) 1919.

THE HOSPITAL INTERNSHIP

For many years the importance of a hospital internship as an essential part of a physician's training has been recognized. During the last twenty-five years medical graduates, in steadily increasing numbers, have voluntarily secured such training. At the present time the percentage of graduates so trained is 90 per cent. That a larger proportion did not secure such internships in the past was due, on the one hand, to the unusually large number of graduates turned out from the medical schools, and, on the other hand, to the limited number of hospitals that were willing to make use of interns. This condition has been corrected in both directions. Through the higher preliminary qualifications required for admission to medical schools, the unusually large number of graduates was reduced to more normal numbers, and the improved qualifications possessed by these graduates induced a larger number of hospitals to utilize their services as interns. The time has arrived when all medical colleges should require the internship as an essential for graduation. Eight medical schools have already taken such action,[1] and four of these have enforced the requirement with respect to graduating classes. The method of procedure was described in an article by Dr. John M. Dodson[2] published last week. Although the general adoption of the requirement will be hastened by the action of state licensing boards[3] in requiring an internship as an essential for the license, it is the medical school that is in the best position to insure that the intern training shall be of high quality. The intern training, as an important part of the physician's instruction, comes within the function of the medical school. The medical school best knows the clinical needs of the students and can best supervise this training in a group of selected hospitals. Since there are now more than enough hospitals to provide internships for all graduates, and since nearly all graduates are voluntarily securing such internships, it will not be a hardship to require it as an essential for both the M.D. degree and for the license to practice. On the contrary, it will result in improving the quality of the intern's training; it will stimulate an interest in modern methods on the part of the attending staff; it will improve the records and routine methods employed in the hospitals and, finally, it will result in far better care and treatment of the patients.

1. A list of these colleges appeared in THE JOURNAL, Aug. 16, 1919, p. 521.
2. Dodson, J. M.: The Fifth, or Intern Year, J. A. M. A. **73**: 469 (Aug. 16) 1919.
3. Nine state boards, listed in THE JOURNAL, Aug. 16, 1919, p. 521, are now requiring a year of intern training as an essential for the license.

GENEALOGY AND POPULATION

The testing of old and familiar hypotheses and general impressions by scientific methods is frequently possible by the application of statistics. A recent genealogical study of population[1] presents some results of general interest. Five genealogies were used, extending over a period of 250 years and furnishing more than 20,000 individuals. Distinct correlation between longevity and fertility in both mothers and fathers is shown; in addition, of course, to the fact of a longer period of reproductive capacity. There is also clear evidence of correlation between age at marriage and fertility, the lowest ages at marriage being associated with the greatest fertilities. Tabular presentation of the fecundity of first-born children showed no appreciable variation from that of the total stock. The data for twinning are strikingly definite, for out of eighty-seven cases of twinning, fifty-six occurred at the end of the mother's reproductive period, and of the five genealogies of approximately equal size, two provided fifty-seven of the occurrences of twins. In connection with the general population question it is noted that the average number of children per married couple was 5.8 for the period 1651-1700; rose to 6.1 for the last fifty years of the eighteenth century, and fell to 3.0 for 1851-1900. Corresponding to this change was a lengthening of the average interval between births from about 2.5 years in the first two periods to 3.41 years in the last.

PHYSICIANS AS UNPAID COLLECTION AGENTS

Physicians in different parts of the country have received letters addressed, not to them personally, but to them as "Town Physician" of the city or village in which they live. These letters, typewritten and obviously "form letters," read:

Dear Sir:—Recently I wrote JOHN DOE of your city but my letter was returned to me by the postoffice undelivered which leads me to believe that the family has moved to some other address without letting me know. If it is not asking too much of you, I assure you it would be a great favor if you could advise or find out for me without putting yourself to too much trouble where a letter can reach this party. It is a matter of considerable importance.

Thanking you for your kindness and assuring you of my appreciation, I remain Yours very truly, HELEN TAYLOR.

The name of the person inquired about, of course, varied; so, may it be said, did the name of the person from whom the letter purported to come. Instead of being a letter from "Helen Taylor" it might be from "W. J. Mitchell" or from some other party, although the handwriting of the signatures was suspiciously similar. In every case a stamped envelop directed, as the case might be, to "Helen Taylor," "W. J. Mitchell," etc., accompanied the request for information. In every instance, too, this envelop was addressed to 146 W. 40th St., Chicago. THE JOURNAL'S investigators found that there is no 146 W. 40th St., and, in fact, could not be, as this address would come at a place that is occupied by railroad tracks. It became obvious, therefore, that these various form letters, evidently from a common source but sent out under different names, were being delivered through the connivance of a postoffice employee. THE JOURNAL laid the matter before the chief inspector of the Postoffice Department at Washington with a request for information. In due time the inspector reported that:

It was ascertained that the communications in question were form letters sent out by the Hartman Co. of Chicago, Ill., with a view to locating persons who owed them accounts.

The concern referred to in the Inspector's report is the Hartman Furniture and Carpet Company, which sells house furnishings on the instalment plan. Its advertising slogan is "Let Hartman Feather Your Nest." So long as physicians remain good-natured and "easy," the Hartman concern is presumably not going to let a chance to feather its own nest go by. Why pay a collection agent when "Town Physicians" are so accommodating? We might add that the most recent letter of this sort that we have seen was addressed to "Minister of Gospel or Town Physician." Religious papers please copy!

WAR RISK INSURANCE

It is reported that more than 50 per cent. of the soldiers and sailors carrying war risk insurance have discontinued their payments; that—almost unbelievable as it may seem—the War Risk Insurance Bureau has not even the addresses of 50 per cent. of its former clients. If this is true it is greatly to be regretted, since the government insurance policies offer to the insured many advantages not available through private insuring companies. In accordance with the terms of the law, the war policies are now being converted to peace-time rates. The latter are considerably less than rates for similar policies given by private companies. The convenience of payment, safety of investment, and other factors tend to make this insurance superior to any private insurance that may be carried. Furthermore, the government is anxious to meet the views and wishes of the insured in every way: for example, some of the insured objected to the method of payment of policies by monthly payments. In an endeavor to satisfy all the insured, a commission has recently been appointed, under the chairmanship of Charles E. Hughes, to make a survey of the situation with a view to making the government insurance even more satisfactory than it now is. A recent decision of the Secretary of the Treasury is to the effect that discharged soldiers, sailors and marines who have dropped or canceled their insurance may reinstate it within eighteen months after discharge, without paying the back premiums. They will be asked to pay only the premiums for two months on the amount of insurance desired. The only stipulation is that the former service man be in as good health as at the date of his discharge. A special form (No. 742) has been prepared by the Bureau of War Risk Insurance to permit application for reinstatement. It can hardly be conceived that any medical officer entitled to this insurance should fail to avail himself of its full benefit. It has been repeatedly asserted that the physician is a poor business man and an easy prey for the canny purveyor of fake investments. It is to be hoped that there are

1. Jones, C. E.: A Genealogical Study of Population, Publications American Statistical Association 16: 201 (Dec.) 1918.

but few physicians included among those who have failed to take advantage of what the government has offered them through its insurance department. If they have, the new decision on reinstatement gives them time for thought and an opportunity to restore themselves to their original enviable status.

ADROITNESS IS CORRECT

Gentlemen who are engaged in the chiropractic trade —we use the word "trade" advisedly—are furnished Helpful Hints for Ambitious Advertisers by an Indianapolis concern that makes a specialty of this line. In one of the numerous leaflets sent out from this source to "Chiropractors" they are urged to "employ an advertising man" and not attempt to write their own copy. It is pointed out that there are in many states laws prohibiting fraudulent advertising, and "today the liar in print is soon run to earth." While we are unable, regretfully, to agree with the last statement, the conclusions drawn from this premise are more easily accepted:

". . . to advertise inside the chiropractic, medical and truth laws, requires some adroitness, some ingenuity of expression, some more than common ability as a wordsmith."

We'll say it does!

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending August 15, there were 8,895 officers in the Medical Corps, a decrease of 766 from the previous week. The Medical Reserve Corps contained 3,231. The total number of physicians discharged since the beginning of the war is 23,463.

Naval Officers Promoted to Rank of Commander

The Navy Department announces the promotion of the following reserve officers to rank of commander:

Robert G. LeComte, Philadelphia; William B. Brinsmade, Brooklyn; Stanley Stillman, San Francisco; Eugene F. DuBois, New York; Rea Smith, Los Angeles; John C. DaCosta, Philadelphia; Milton J. Rosenau, Boston; George G. Ross, Philadelphia; Albion W. Hewlett, San Francisco; Hobart A. Hare, Philadelphia; Robert B. Greenough, Boston; Judson Daland, Philadelphia; James F. Talley, Philadelphia; Edward M. Foote, New York; Paul A. Lewis, Philadelphia; Guy Cochran, Los Angeles; Verne A. Dodd, Columbus, Ohio; Edgerton L. Crispin, Los Angeles; John A. McGlinn, Philadelphia; LeRoy G. Crandon, Boston; Harold D. Meeker, New York; Nelson H. Clark, Pittsburgh; Halsey DeWolf, Providence; Charles W. Moots, Toledo, Ohio; George A. Matteson, Providence; James T. Hanan, Brooklyn; Francis J. Dever, Philadelphia; Frank C. Gregg, Manor, Texas; Clifford E. Henry, Minneapolis; Porter B. Brockway, Toledo, Ohio; Clinton C. Tyrrell, Minneapolis; Frederick O. Williams, Columbus, Ohio; Harvey M. Righter, Philadelphia; Zachary T. Scott, Austin, Texas; William C. Newton, Revere, Mass., and William H. Areson, Upper Montclair, N. J.

Awards of Distinguished Service Cross

The distinguished service cross was awarded by the commanding general, American Expeditionary Forces, for extraordinary heroism in action in Europe to the following named officers of the American Expeditionary Forces and of the Allied armies:

RAY H. HUMPHREY, Major, Medical Corps, Union, N. Y., 130th Inf. For extraordinary heroism in action near Bois de Septsarges, France, Oct. 4, 1918. Having just been transferred to the 130th Inf., Major Humphreys (then captain) was seriously wounded in the head while on his way to take up his work at the regimental aid post. He nevertheless refused to be evacuated, but continued on duty caring for the wounded at this place. He later proceeded under severe artillery fire to the battalion aid post, where he continud his work under most trying conditions.

ERNEST W. SLUSHER, Major, Medical Corps, Kansas City, Mo., 140th Inf. For extraordinary heroism in action near Charpentry, France, September 29-30, 1918. Although severely gassed, he continued on duty until he collapsed twice, and was carried each time to a dressing station. Advised to go to a Field Hospital for treatment, he waited until he had partially recovered and then returned to duty in the field, working continually among the wounded and exposing himself to hostile fire.

ALBERT W. LINDBERG, Captain, Medical Corps, Wellsboro, Ill., 2d Machine Gun Battalion. For extraordinary heroism in action near Exermont, France, October 8, 1918. Crawling out over shell-torn ground and in face of direct machine gun fire, he rescued a soldier whose leg had been shattered by shell fire. By performing an amputation while constantly exposed to sniping and machine-gun fire he made it possible to evacuate the soldier to safety a few hours later, when the infantry moved forward.

SAMUEL J. MARKS, 1st Lieut., Medical Corps, Philadelphia, 314th Inf. For extraordinary heroism in action near Malancourt, France, Sept. 27-29, 1918. Lieut. Marks advanced with the foremost elements of his battalion, dressing and evacuating the wounded under machine gun fire for a period of 12 hours. On September 29, when his aid station was shelled, several patients and attendants being killed and wounded, remained at his post caring for patients who had received fresh wounds and assisted in their evacuation.

CHAUNCEY E. DOVELL, first lieutenant, Medical Corps, 371st Infantry. For extraordinary heroism in action near Bussy Farm, Ardeuil, Montfauxelles, and Trieres Farm, France, Sept. 28-30, 1918. Throughout three days of most intense action Lieut. Dovell worked unceasingly in caring for the wounded, disregarding a severe wound which he himself received in the neck by a shell fragment. He remained continuously on duty giving an example of fortitude and courage to all about him.

Distinguished Service Medal Awarded

Major J. R. CULKIN, Medical Corps, United States Army, for exceptionally meritorious and conspicuous service when in charge of Camp Hospital No. 1, at Camp Upton, N. Y., during the serious epidemic of influenza at this camp in September and October, 1918. Due to his great energy and good will, and unwillingness to meet defeat in any form, remarkable results were obtained at this hospital.

Croix de Guerre Awarded

WILLIAM H. HOLMES, Major, M. C., U. S. Army, Chicago, has been awarded the Croix de Guerre.

Citations for Bravery

The following officers have been cited for bravery:

HUBBARD K. HINDE, Capt., M. C., U. S. Army, San Angelo, Texas, "for exceptional meritorious and conspicuous service while under shell fire on the Meuse-Argonne front, Oct. 26, 1918."

RALPH H. MCFADDEN, Lieut., M. C., U. S. Army, Chester, S. C., has been awarded certificate of authorization to wear the arms of the city of Langres, France.

ARTHUR A. LAW, Lieut.-Col., M. C., U. S. Army, Minneapolis, was cited by General Pershing, "for exceptional meritorious and conspicuous service" at Base Hospital No. 26, France.

Given British Military Cross

JOHN M. HAYES, Capt., M. C., U. S. Army, Decatur, Ill., has been awarded the British Military Cross for valor in maintaining an advanced dressing station under fire at the Amiens front.

Receive Legion of Honor Decorations

ALEXANDER BRUNO, Capt., American Red Cross, New York City, has been awarded the cross of the Legion of Honor, by the French government.

Dr. WILLIAM PALMER LUCAS, San Francisco, who has been in charge of the rehabilitation work among French refugee children, has been made a Chevalier of the Legion of Honor and has also been given the Médaille d'Epidémie.

GUSTAVUS M. BLECH, Lieut.-Col., M. C., U. S. Army, Chicago, commander of U. S. Base Hospital No. 208, has been awarded the Legion of Honor by the French government.

Dr. WILLIAM J. FRENCH, Washington, D. C., who went to France in 1918, and opened numerous nursing clinics in the densely settled districts of Paris, has been given the Cross of the Legion of Honor.

Citations with Palm

Dr. MARY L. EVANS, Portland, Ore., who has been on duty with the French army for ten months as specialist in nervous and mental diseases, has received the citation with palm and the Médaille de Reconnaissance from the French government.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Alexander City—Allen, L. B. (C.)
Anniston—Underwood, S. S. (C.)
Birmingham—Wood, S. C. (L.)
Chatam—Kimbrough, W. E. (C.)
Furman—Perdue, J. D. (M.)
Gadsden—Shahan, J. (C.)
Huntsville—Caldwell, E. V. (C.)
Montgomery—Rush, R. C. (C.)
Sylacauga—Craddock, F. H. (M.)
Troy—Beard, R. B. (C.)
Hamil, J. Y. (C.)

ARIZONA

Miami—Miller, F. F. (C.)
Yuma—Knotts, R. R. (C.)

ARKANSAS

Bebbe—Jungkind, B. F. (C.)
Bonanza—Parks, R. F. (C.)
Clarendon—Thomas, P. E., Jr. (C.)
Evansville—Hiner, B. C. (C.)
Fort Smith—Eberle, W. G. (L.)
Little Rock—Gray, W. K. (L.)
Holmes, G. M. (M.)
Magnolia—Longino, H. E. (C.)
Mammoth Springs—Chapman, A. S. (L.)
Russellville—Drummond, H. S. (L.)

CALIFORNIA

Brentwood—Cook, F. S. (C.)
Calipatria—Lindrey, L. L. (L.)
Covina—Reed, W. A. (L.)
Cudlow—Yager, W. L. (L.)
Fair Oaks—Bramhall, R. N. (L.)
Fresno—Crayer ft, H. J. (M.)
Hawthorne—Kerr, A. N. (C.)
Hermosa Beach—McPheeters, E. R. (C.)
Los Angeles—Butka, H. E. (L.)
Nevius, J. W. (L.)
Spiers, H. W. (L.)
Oakland—Gregory, A. M. (C.)
Redlands—Burke, E. W. (C.)
Holmes, A. O. (L.)
Sacramento—Myers, O. R. (L.)
San Diego—Harding, M. C. (M.)
San Francisco—Catton, J. H. (M.)
Glover, C. A. (M.)
Harris, C. S. (C.)
Haffziger, H. C. (L. C.)
Quinan, C. (M.)
Wright, H. J., Jr. (L.)
San Leandro—Lynch, W. C. (M.)
Stanford University—Snow, W. F. (L. C.)
Vallejo—Peterson, E. A. (C.)
Venice—Smiley, A. C. (C.)

COLORADO

Breckinridge—Condon, C. E. (L.)
Buena Vista—Ayers, V. B. (C.)
Delta—Shaffer, E. G. (C.)
Denver—Garwood, H. G. (M.)
Fort Morgan—Bowie, R. C. (C.)
Holly—Bremser, J. M. (L.)
Pueblo—Streamer, C. W. (C.)

CONNECTICUT

Bridgeport—O'Connell, J. G. (C.)
Greenwich—Knapp, C. W. (M.)
Groton—Douglass, E. L. (L.)
Hartford—Whalen, E. J. (L.)
Mystic—Stillman, C. R. (L.)
Norwich—Driscoll, T. T. (C.)
Stamford—Smith, W. E. (L.)
Waterbury—Barber, W. L. (L.)
Willimantic—Keating, W. P. S. (C.)

DISTRICT OF COLUMBIA

Washington—Piggott, J. B. (M.)
Robbins, C. S. (C.)
Ryan, F. K. (C.)

FLORIDA

Bradentown—Hollingsworth, S. G. (C.)
Jacksonville—Peterson, C. A. (L.)
Peyton, H. A. (M.)
Loughridge—Greene, R. J. (L.)
Melbourne—Martin, L. H. (M.)
Millville—Nixon, J. M. (C.)
Nichols—Dickinson, W. P. (C.)
Plant City—Crum, J. W. (C.)

GEORGIA

Atlanta—Aycock, M. (C.)
Holton, C. F., Jr. (M.)
Jackson, T. F. (C.)
Jacobs, S. H. (C.)
Atlanta—Kelley, L. H. (C.)
Patterson, J. C. (M.)
Redd, H. L. (L.)
Remsen, C. M. (L. C.)
Rosenberg, H. J. (M.)
Stockard, C. (C.)
Weinkle, B. O. (L.)
Augusta—Shaw, H. W. (M.)
Bainbridge—Griffith, W. W. (L.)
Blairsville—Wellborn, C. J. (L.)
Blakely—Fitzgerald, P. H. (M.)
Campton—Everett, J. J. (L.)
Carrollton—Mullins, G. R. (C.)
Elberton—Mattox, B. B. (L.)
Ellenton—Whiddon, L. L. (L.)
Sylvania—Reddick, A. B. (L.)

IDAHO

Buhl—Randall, G. B. (C.)

ILLINOIS

Bloomington—Casner, A. J. (C.)
Canton—Scholes, P. S. (L.)
Champaign—Kariher, H. C. (C.)
Chicago—Beaton, L. A. (C.)
Burkholder, C. A. (C.)
Cohen, M. A. I. (C.)
Colebaugh, C. W. (C.)
Dwyer, H. J. (L.)
Dyas, F. G. (M.)
Eckwall, H. J. (C.)
Finegan, T. F. (C.)
Galgano, M. A. (L.)
Gauss, H. (C.)
Geehan, M. J. (C.)
Graf, J. F. (L.)
Griffin, G. D. J. (C.)
Lampert, M. (L.)
Lewis, D. D. (C.)
Lurie, G. A. (L.)
Mathisen, G. B. (L.)
Moore, B. H. (M.)
Moss, E. B. (M.)
Packard, K. K. (C.)
Phillips, R. H. (C.)
Pohl, C. M. (C.)
Porter, J. L. (M.)
Rategan, E. H. (C.)
Riley, J. C. (C.)
Sandahl, A. P. M. (L.)
Sutton, D. C. (L.)
Tallerday, G. C., Jr. (C.)
Venable, G. L. (L.)
Ware, H. A. (C.)
Wright, R. F. (L.)
Danville—Babcock, H. S. (M.)
Dixon—Powell, G. P. (C.)
Galesburg—Hunt, J. H. (C.)
Ripley, C. B. (C.)
Grayslake—Palmer, J. M. (C.)
Harvel—Kilton, W. B. (L.)
Hillsboro—Douglas, J. (M.)
Hoopston—Earel, F. E. (C.)
Kankakee—Cannon, W. P. (C.)
Keyesport—Welch, G. N. (L.)
McHenry—Moeller, A. F. (L.)
Monticello—Hawthorne, R. O. (L.)
Mount Carroll—Coleham, S. P. (C.)
Oblong—Griffy, R. (C.)
Taylorville—Herdman, S. B. (C.)
Tuscola—Ingram, G. R. (L.)

INDIANA

Claypool—Taylor, G. C. (C.)
Fairmount—Seale, J. P. (C.)
Indiana Harbor—Morris, F. H. (L.)
Indianapolis—Brayton, F. A. (L.)
Gutelius, C. (M.)
Hickman, W. F. (C.)
Stafford, L. H. (L.)
Stout, W. M. (C.)
Ingleside—Wright, E. L. (L.)
Knox—Bell, H. L. (L.)
Marion—Davis, A. T. (L.)
Martinsville—Robinson, F. C. (M.)
Monticello—Coffin, J. R. (M.)
Owensville—Montgomery, J. R. (C.)
Petersburg—Byers, O. A. (L.)
Rossville—Clark, N. W. (C.)
South Bend—Semsenich, R. L. (M.)
Wabash—Domer, W. A. (M.)
Warsaw—Anglin, G. W. (C.)

IOWA

Cedar Rapids—Zuercher, A. R. (C.)
Centerville—Blachley, T. W. (L.)
Dayton—Kiesling, H. F. (L.)
Glenwood—Lacey, T. B. (C.)
Hartley—Hand, W. C. (L.)
Knoxville—Cornell, C. S. (C.)
LeMars—Gottsch, F. J. (C.)
Ottawa—Trump, F. A. (L.)
Pacific Junction—Gaughian, G. V. (L.)
Reinbeck—Bartruff, C. H. (L.)
Sioux City—Sheehy, J. (C.)
Vincent—Parsons, C. D. (C.)

KANSAS

Arcadia—Pettet, J. D. (M.)
Iola—Garlinghouse, O. L. (M.)
Lecompton—Kerr, C. C. (C.)
Mayetta—Bliss, C. J. (M.)
Norton, Kennedy, F. D. (C.)
Ottawa—Trump, F. A. (L.)
Parsons—Brady, W. R. (L.)
Selden—Pope, W. H. (C.)
Topeka—Cahill, C. J. (C.)
Waterville—Thacher, G. I. (M.)
Wichita—Davidson, H. T. (L.)

KENTUCKY

Carrollton—Wheeler, J. P. (C.)
Lexington—Million, J. E. (L.)
Louisville—Allen, W. H. (L.)
Aud, F. G. (M.)
Bloch, O. E. (C.)
Brannon, H. S. (L.)
Bruce, J. W. (C.)
Eggers, H. S. (C.)
McCracklin, W. F. (L.)
Rudell, L. C. (C.)
Schoonover, H. E. (L.)
Simpson, V. E. (M.)
Ludlow—McCord, H. E. (C.)
Newport—Krieger, W. A. (C.)
Paris—Orr, J. A. (C.)
Tompkinsville—Mars, J. F. (L.)

LOUISIANA

Amite—Smith, G. J. (L. C.)
Baton Rouge—Chamberlain, W. B. (C.)
Houston—Collins, M. M. (C.)
New Orleans—Barkley, C. D. (C.)
Hubner, E. J. (M.)
Kinney, K. W. (C.)
Perkins, W. M. (M.)

MAINE

Damariscotta Mills—Clarke, W. E. (L.)
Enfield—Hammond, W. J. (C.)
Harrison—Sylvester, C. B. (C.)
Portland—Moulton, W. D. (C.)

MARYLAND

Baltimore—Ashbury, H. E. (M.)
Chesney, A. M. (M.)
Gott, E. F. (L.)
Hirschman, I. I. (C.)
MacCalman, D. (M.)

MASSACHUSETTS

Boston—Dahlen, C. A. (L.)
Levine, S. A. (C.)
Martin, D. L. (C.)
McGuire, J. H. (C.)
Salerno, L. F. (L.)
Scales, R. B. (M.)
Shields, W. G. (C.)
Wear, J. T. (L.)
Fall River—Neistadt, C. S. (L.)
Fitchburg—Grieumard, G. A. (C.)
Rice, R. A. (C.)
Gardner—Elliott, H. W. (L.)
Hingham—Whelan, C. (C.)
Lawrence—Murphy, T. W. (C.)
Leominster—Shaughnessy, T. A. (C.)
Malden—Burpee, C. C. (C.)
Newton—Eastman, L. G. (L.)
Northampton—Cooney, M. E. (L.)
Townsend—Chandler, C. L. (L.)
Wenham—Phillips, C. (M.)
Williamsett—Heywood, N. J. (L.)
Worcester—Falvey, H. J. (C.)

MICHIGAN

Albion—Chauncey, E. M. (L.)
Alma—Gardner, C. B. (C.)
Ann Arbor — Vaughan, W. T. (L. C.)
Detroit—Belknap, C. H. (C.)
Cole, F. H. (L.)
Danziger, S. S. (C.)
DuBois, C. F. (L.)
Harris, E. R. (C.)
Lee, E. C. (M.)
Marsden, T. B. (C.)
Plaggemeyer, H. W. (C.)
Stout, L. H. (L.)
Wall, J. A. (C.)
Wood, G. C. (L.)
Woodruff, C. A. (C.)
Escanaba—Olson, C. W. (L.)
Flint—Clark, C. P. (L.)
Evers, J. W. (C.)
Grand Rapids—Kinsey, F. C. (M.)
Miller, J. H. (C.)
Jackson—Hackett, T. E. (L.)
Mackinaw—Tiffany, A. C. (C.)
Mount Clemons—Heine, A. W. (L.)
Port Huron—Ryerson, W. W. (L.)
Wayne—Earle, R. H. (M.)

MINNESOTA

Bemidji—Sanborn, C. R. (L.)
Blue Earth—Chambers, W. C. (C.)
Brainerd—Berge, P. L. (L.)
Buhl—Johnson, S. M. (L.)
Duluth—Kuth, J. R. (C.)
Glenwood—Desmond, M. A. (L.)
Selleseth, I. F. (C.)
Minneapolis—Higbee, F. A. (C.)
Mintener, J. W. (C.)
Thompson, H. H. (C.)
Paynesville—Arndt, H. W. (C.)
Rochester—Mastin, E. V. M. (L.)
Russell—Hall, E. L. (C.)
Springfield—Meierding, W. A. (C.)
St. Paul—Doyle, J. B. (L.)
Waconia—Stock, W. J. (C.)
Wadena—Davis, L. T. (C.)

MISSISSIPPI

Bentonia—Henry, M. C. (C.)
Corinth—McRae, M. H. (L.)
Moss Point—Burnham, H. M. (L.)
Rockport—McCalip, H. L. (L.)
Vicksburg—O'Neil, R. T. (C.)

MISSOURI

Blackwater—Abney, W. L. (L.)
Carthage—Bryan, H. (C.)
Coffman—Hamilton, M. (C.)
Humansville—Russell, R. L. (C.)
Kansas City—Bryant, C. H. (C.)
Counsell, C. M. (L.)
Harris, B. F. (L.)
Hodges, R. E. (C.)
Miller, G. C. (M.)
Ransone, A. T. (L.)
Rush, G. A. (L.)
Maryville—Wallis, W. M. (C.)
Meta—Gaston, S. E. (C.)
Rockville—Powers, C. E. (M.)
Salisbury—Koenig, C. A. (L.)
Shelbina—Battersby, R. S. (L.)
St. Charles—Gormly, A. (M.)
St. Joseph—Conrad, H. S. (C.)
St. Louis—Creveling, H. C. (C.)
Happel, H. E. (C.)
Levy, A. (C.)
Lowenstein, P. S. (L.)
McClory, A. (L.)
McGennis, P. (L.)
Myers, G. M. (L.)
Short, U. S. (L.)

MONTANA

Billings—Arnold, S. G. (M.)
Thuecker, E. (C.)
Butte—Moore, T. V. (M.)
Scott, T. B. (L.)
Denton—Jenson, J. L. (M.)
Great Falls—Lakey, W. J. (C.)
Moore—Porter, E. (L.)

NEBRASKA

Haigler—Woods, R. (C.)
Hooper—Heine, C. D. (C.)
Neligh—Harrizon, U. S. (C.)
Omaha—Anderson, W. N. (M.)
Everitt, N. J. (C.)

NEW HAMPSHIRE

Exeter—Perkins, R. S. (C.)

NEW JERSEY

Atlantic City—Hughes, J. W. (L.)
Camden—Casselman, A. L. (C.)
Cliffside—Schmidt, W. W. (L.)
East Orange—Rathgeber, C. F. (L.)
Hackensack—Esertier, E. P. (C.)
Longport—Greenwood, A. M. (L. C.)
Maplewood—Colsh, L. L. (C.)
Millville—Charlesworth, R. R. (L.)
Morristown—McMurtrie, W. A. (C.)
Newark—Conlon, P. J. (C.)
Fort, J. I. (C.)
Heller, N. (C.)
Meckler, L. (C.)
Pinneo, F. W. (M.)
Plainfield—Pratt, C. H. (L.)
West Hoboken—Ockene, A. (L.)

NEW MEXICO

Dedman—Lanford, A. E. (L.)
Gallup—Willson, H. G. (C.)

NEW YORK

Albany—VanderVeer, J. N. (M.)
Auburn—Bennett, F. J. (C.)
Bull, H. S. (L.)

Brooklyn—Fuhrman, H. C. (L.)
Gauch, F. (L.)
Ketterle, J. (C.)
Koven, M. T. (L.)
Meagher, J. P. W. (M.)
Plotz, H. (M.)
Ring, P. B. (L.)
Signorelli, G. J. (L.)
Stenbuck, J. B. (L.)
Wood, R. L. (C.)
Buffalo—Carr, J. H. (C.)
Critchley, G. R. (C.)
Hensel, R. (C.)
Central Islip—Conlon, W. A. (M.)
Elmira—Harding, J. R. (C.)
Piper, S. S. (M.)
Endicott—Dudley, D. G. (L.)
Flushing—Hardegree, H. C. (L.)
Geneva—Snyder, F. H. (L.)
Mamaroneck—Cantle, W. H. (C.)
Middletown—Thorburn, G. (C.)
New York—Barrett, F. J. (L. C.)
DeYoe, L. E. (C.)
Gilchrist, E. F. (C.)
Glass, F. A. (L.)
Gluck, H. (L.)
Harkavy, J. (L.)
Herrman, J. (C.)
Jaches, G. (L. C.)
Knowles, F. (M.)
Larson, H. M., Jr. (C.)
Lorenze, E. J., Jr. (L.)
Lowry, R. L. (C.)
McCollom, L. R. (C.)
McGlade, J. J. (L.)
Morowitz, B. F. (L.)
Pemberton, R. (L.)
Seiff, H. I. (L.)
Sweetser, T. H. (C.)
Weitz, C. L. (L.)
Oneonta—Getman, N. W. (L.)
Mills, D. H. (L.)
Rochester—Barber, F. (L.)
Bradley, J. R. (M.)
Hoyt, C. W. (M.)
Newman, M. A. (L.)
Schaghticoke—Beecroft, M. B. (C.)
Schenectady—Purcell, P. F. (L.)
Smithtown Branch—Turrell, G. H. (M.)
South Otselic—Perkins, A. T. (L.)
Staten Island—Craig, H. A. (C.)
Pollack, M. L. (L.)
Severance, R. N. (M.)
Teague, O. (M.)
Syracuse—Corbett, J. J. (C.)
Troy—Shields, W. T., Jr. (C.)
Watertown—Pawling, J. R. (L.)
Webster—Foster, J. B. (C.)

NORTH CAROLINA

Asheville—Cheesborough, T. P. (C.)
Cocke, J. E. (L.)
Orr, C. C. (C.)
Aboskie—Benthall, R. F. (L.)
Rockingham—Garrett, F. B. (L.)
Roxobel—Norfleet, E. P. (L.)
Swan Quarter—Swindell, L. H. (L.)
Wilmington—Peterson, W. C. (L.)
Zubulon—Horton, A. G. (L.)

NORTH DAKOTA

Bismarck—Quain, E. P. (L. C.)
Rugby—Crammond, J. E. (C.)

OHIO

Batavia—Griffith, M. S. (L.)
Cincinnati—Kelly, T. H. (M.)
King, E. (L.)
Lee, H. M. (L.)
Maddox, R. D. (M.)
Rowe, J. W. (M.)
Stanbery, H. (M.)
Cleveland—Caine, W. H. (C.)
Geraci, F. P. (L.)
Konrad, E. C. (C.)
Newbauer, B. B. (C.)
Sloan, H. G. (C.)
Thomas, R. L. (C.)
Columbus—Markwith, R. H. (L.)
Vorhes, J. H. (L.)
Wilson, P. D. (M.)
Convoy—Sidle, C. D. (L.)
Dayton—Reck, H. W. (L.)
Eaton—Silver, H. Z. (M.)
Fort Washington—DeMuth, W. F. (C.)
Hamilton—Graft, J. A. (L.)
Leesburg—Lowe, H. H. (L.)
Norwood—Klein, E. A. (C.)
Port Clinton—Brindley, A. A. (L.)
Portsmouth—Keil, H. M. (C.)
Springfield—Ultes, W. P. (L.)
Toledo—Hunter, J. E. (C.)
Lehman, F. J. (L.)
Ricard, W. A. (C.)
Sinkey, R. E. (L.)
Utica—Cass, E. M. (M.)
Wauseon—Maddox, W. H. (C.)
Xenia—McPherson, C. G. (L.)
Youngstown—Ranz, W. E. (M.)

OKLAHOMA

Blackwell—Hawkins, J. C. (C.)
Collinsville—Presson, L. C. (C.)
Dill—Weaver, E. S. (L.)
Drumright—Thomason, F. (L.)
Durham—Payne, J. H. (C.)
El Reno—Hovenden, O. (C.)
Enid—Francisco, F. G. (L.)
Hugo—Johnson, E. A. (C.)
Nowata—Kurtz, R. L. (M.)
Oklahoma City—Lee, C. E. (C.)
Sackett, L. M. (L.)
Yeakel, E. L. (L.)
Sallisaw—Cheek, J. A. (L.)
Shawnee—Rowland, T. D. (C.)
Tulsa—Irvan, H. D. (L.)

OREGON

Buxton—Page, P. C. (C.)
Medford—Saunders, C. E. (C.)
Portland—Wade, B. N. (C.)
Roseburg—Houck, G. E. (M.)
Scio—Potter, W. H. (C.)
Seaside—Van Doren, F. (M.)

PENNSYLVANIA

Allentown—Rogers, C. C. (L.)
Beaver Falls—Jackson, J. M. (C.)
Berwick—Davis, E. L. (C.)
Bethayres—Coley, T. L. (M.)
Bloomsburg—Montgomery, J. R., Jr. (C.)
Chester—Murray, F. H. (C.)
Du Quesne—Mills, W. W. M. (L.)
East Brady—Wallace, W. S. (L.)
Edinburg—Wright, W. W. (L.)
Greensburg—Bailey, L. J. C. (L. C.)
Lancaster—Hassenplug, H. G. (L.)
Seibert, W. E. (L.)
Marcus Hook—Crothers, G. F. (C.)
Monessen—Wilson, A. R. (C.)
Mont Alto—Woods, W. W. (C.)
Oberlin—Byrod, F. W. (L.)
Philadelphia—Arnett, J. H. (C.)
Bowen, C. R. (C.)
Cornell, W. S. (M.)
Curran, J. D. (C.)
Dannenberg, A. M. (C.)
Flannery, L. G. (L.)
Fogarty, C. A. (C.)
Gott-chall, A. (L.)
Heilemann, H. (C.)
Martin, J. R. (C.)
McKenzie, B. W. (L.)
Pessolano, J. A. (L.)
Tassman, I. S. (L.)
Trasoff, A. (C.)
VanDolson, W. W. (C.)
Pitcairn—Thompson, M. M. (L.)
Pittsburgh—Cave, W. A. (L.)
Gardner, W. E. (L.)
Goldstein, J. H. (L.)
Graver, E. (L.)
Hamilton, S., Jr. (M.)
Harvey, W. B. (C.)
Hicks, A. V. (C.)
Jones, H. L. (C.)
Leslie, E. C. (L.)
Materr, H. O. (C.)
McCormick, B. (L.)
Palchanis, W. T. (L.)
Silman, C. N. (L.)
Van Gorder, G. W. (C.)
Scranton—Davis, F. W. (C.)
Selinsgrove—Decker, E. R. (M.)
Waynesboro—Shoemaker, D. M. (C.)
Wilkes Barre—Yeager, C. H. (M.)
Williamsport—Myers, M. W. (L.)

RHODE ISLAND

Pawtucket—Holt, C. H. (M.)
Providence—Cannon, J. S. (L.)
Danforth, M. S. (M.)
Hawkins, J. F. (M.)
Wilcox, R. S. (C.)
Woonsocket—Barry, C. B. (C.)

SOUTH CAROLINA

Columbia—Harrison, E. M. (M.)
McConnellsville — Moore, J. W. (M.)
Newberry—Mower, F. D. (M.)
Oswego—Wyman, B. F. (C.)
Union—McElroy, A. P. (C.)

SOUTH DAKOTA

Belle Fourche—Fasser, A. O. (C.)
Bruce—Edward, G. (C.)
Madison—Goldman, E. H. (C.)
Mitchell—Gillis, F. D. (L.)
South Shore—Read, F. T. (L.)
Yankton—Stiffler, M. L. (L.)
Morehouse, E. M. (C.)

TENNESSEE

Bellwood—Campbell, M. B. (L.)
Bristol—Booher, W. C. (C.)
Chattanooga—McPheters, J. D. L. (C.)
Lynchburg—Cooley, J. L. (L.)
Memphis—Burchart, S. (L.)
Perkins, P. A. (M.)
Ragsdale, J. W. (L.)
Wadley, S. L. (C.)
Nashville—Deathridge, O. S. (C.)
Paris—McSwain, G. R. (C.)
Rockwood—Clack, W. S. (C.)

TEXAS

Angleton—Metheral, J. D. (C.)
Brownwood—Paige, W. A. H. (L.)
Dallas—Straub, G. L. (L.)
Strong, S. (C.)
El Paso—Lynch, K. D. (C.)
Fulshear—Harris, R. D. (C.)
Honey Grove—Wimer, W. W. (L.)
Houston—Moore, C. L. (L.)
Park, J. H., Jr. (L.)
Lamera—Bennett, W. H. (C.)
Mesquite—Bruton, E. B. (C.)
Port Arthur—Mabry, F. D. (L.)
Rosenberg—Balke, J. W. (C.)
San Angelo—Miller, C. R. (L.)
Sherman—Venable, D. R. (C.)
Sulphur Springs—Johnson, J. J. (L.)

UTAH

Devils Slide—Dorland, C. E. (C.)
Salt Lake City—Tyree, J. E. (C.)

VERMONT

Burlington—Adams, B. D. (C.)
Frank, B. (L.)
McKenzie, W. F. (C.)
Windsor—Burnham, A. W. (C.)

VIRGINIA

Chilhowie—Neff, E. E. (C.)
Cinchport—Cox, W. P. (L.)
Kents Store—Lee, B. (L.)
Randolph—Thornhill, R. F. (L.)
Richmond—Sinclair, F. A. (L.)
Tangier—Gill, G. B. (L.)

WASHINGTON

Grand Ronde—Schmidt, R. E. (L.)
Seattle—Chesman, F. N. (C.)
Edson, E. R. (M.)
Spokane—Graves, J. C., Jr. (L. C.)
Tacoma—Monroe, W. A. (L.)

WEST VIRGINIA

Douglas—Ellison, R. F. (L.)
Huntington—Shafer, E. E. (C.)
Raleigh—Banks, M. C. (M.)
Ripley—Kessel, R. (C.)
Wheeling—Coyle, A. L. (L.)

WISCONSIN

Delafield—Pleyte, A. A. (L.)
Green Bay—McGinnis, J. E. (C.)
Madison—Carter, H. M. (C.)
Dean, J. F. (C.)
Manawa—Fowzer, L. R. (L.)
Marshfield—Sexton, W. G. (L.)
Milwaukee—Carroll, J. H. (L.)
Mukwonago—Youmans, L. E. (L.)
Oconomowoc—Miller, T. (L.)
Sheboygan—Bachmann, H. A. (L.)
Wausau—Jones, R. W. (C.)

WYOMING

Evanston—Holland, J. H. (C.)
Kemmerer—Sanders, R. H. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

San Diego—Thomas, G. N.

COLORADO

Denver—Cohenour, L. B.

CONNECTICUT

New Haven—Wright, L. H.

DISTRICT OF COLUMBIA

Washington—Copeland, E. P.

INDIANA

Decatur—Fulk, M. E.
Evansville—Yeck, C. W.
Indianapolis—Kuebler, L. W.

IOWA

Dallas Center—Burns, H. B.
Lansing—Fellows, B.

KANSAS

St. Mary's—DeBacker, L. J.

LOUISIANA

New Orleans—Perret, J. M.

MASSACHUSETTS

North Adams—Higley, C. J.

MICHIGAN

Hancock—Axelson, A. U.
Ironwood—Anderson, C. E.

MINNESOTA

Litchfield—McCusker, A. J.

MISSISSIPPI

Gloster—McLain, J. H.

NEW JERSEY

Camden—Moore, F. F.
Frehold—Clayton, J. C.

NEW YORK

Brooklyn—Weinstein, I. S.
New York—Brewster, G. F.

NORTH CAROLINA

Raleigh—Judd, E. C.

OREGON

Portland—Murphy, J. M.

PENNSYLVANIA

Clifton Height—Hawke, W. W.
Dallas—White, H. C.
Philadelphia—Craif, E. B.

TEXAS

Galveston—Braun, I.

VIRGINIA

Richmond—Wescott, H. H.

United States Maximum Opium Consumer.—As the result of investigations made by a committee appointed by the secretary of the treasury, March 25, 1918, to investigate the traffic on narcotic drugs, it has been determined that from ten to sixty times as much opium per capita is consumed annually in the United States as in any other country from which reliable records can be obtained. The investigations included simply the traffic in opium and coca leaves, their preparations, and habit-forming alkaloids. The following table shows the per capita consumption of opium by the United States and certain foreign countries:

Country	*Population	Total Annual Consumption, Pounds	Consumption per Capita, Grains
Austria	46,000,000	3,000-4,000	½ to ⅝
Italy	33,000,000	6,000	1
Germany	60,060,000	17,000	2
France	40,000,000	17,000	3
Portugal	5,500,000	2,000	2½
Holland	6,000,000	3,000	3½
United States	92,000,000	470,000	36

* The population is that given for 1910.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Unlicensed Practitioners Arrested.—A. E. Mohr, Pasadena, and G. G. Sanchez and Donald Donovan of Los Angeles were arrested by an inspector of the State Board of Medical Examiners on the charge of practicing medicine without a license.

"Cancer-Cure Expert" Arrested.—M. M. Winchell of Los Angeles has been arrested on the charge of responsibility for the death of Mrs. Nettie Daniels who, it is alleged, died a few minutes after Winchell had injected a solution of his "cancer-cure" into her arm. Winchell was released on bail of $5,000.

Woman Physician Charged with Murder.—Dr. R. May Minaker, San Francisco, was rearrested and charged with murder on account of the death of Mrs. Jadriga Jazwicz, victim of an illegal operation. She was released on $10,000 bail. Several weeks ago Dr. Minaker was in the police court on the same charge but after a hearing was dismissed.

Card Sentenced to San Quentin.—Dr. William S. Card, San Francisco, recently convicted of second degree murder as a result of the death of a young woman on whom he had performed a criminal operation, was taken to San Quentin to begin the service of a sentence of from ten years to life. He has been arrested forty-two times but almost invariably managed to escape punishment.

Physician Indicted on Seventeen Fraud Charges.—Dr. George F. Brackett, San Francisco, former federal and county physician at the county jail, San Francisco, has been arrested on the charge of defrauding the government out of thousands of dollars while employed to care for prisoners at the county jail. The indictment contained seventeen charges of fraud. Dr. Brackett was released on bail of $5,000.

Personal.—Dr. Etta G. Gray, Los Angeles, president of the war work committee of the National Women's Association, sailed for Europe, August 4, for a year of service in France and Serbia. Her first work will be the establishment of a chain of hospitals in Serbia.——Dr. John Mark Lacey, Los Angeles, medical director of the Los Angeles County Hospital, has resigned.——Dr. Herbert R. Stolz, medical adviser to the male students of Stanford University, has resigned. ——A dinner was given by the public health department of Oakland and the public health center of Alameda County at Oakland, August 7, in honor of Drs. William Thompson Sedgwick, Boston, and Richard A. Bolt, Cleveland. The topic for discussion was the prevention of disease.

ILLINOIS

Personal.—Health Commissioner John D. Robertson, Chicago, was reelected chairman of the city morals commission, August 11.——Dr. Charles A. Johnson, Barry, has been commissioned captain, M. C., Ill. N. G., and assigned to the depot organization of the Eighth Infantry.

Scale for Telephone Advice Raised.—The secretary of the Kane County Medical Society announces that in the medical news for August 16 the item which stated that Kane County physicians will charge 50 cents for telephonic information hereafter is incorrect. The fee for such advice is to be $1.

Sanatorium Opened.—The McLean County Tuberculosis Sanatorium at Bloomington was dedicated with impressive ceremonies, August 17. The principal address was delivered by Dr. George T. Palmer, Springfield, president of the Illinois Tuberculosis Association. The sanatorium has been erected at a cost of $50,000, and will accommodate 250 patients.

Violators of Drug Law.—Dr. Thomas Roberts, said to have been at one time a well known physician of Chicago, was arrested, August 16, by federal agents, charged with violation of the Harrison Narcotic Law, and held in bonds of $2,000. He is accused of having given narcotic prescriptions to drug addicts and of having himself made sales of habit-forming drugs.

New Officers.—The Medical Women's Club, at its August meeting, elected the following officers: president, Dr. Grace H. Campbell; vice presidents, Drs. Cecelia P. Kimball and M. Osborne Lichner; secretary, Dr. Adelaide M. Tyrrell, and treasurer, Dr. Emma H. Salisbury Peterson, all of Chicago. ——Arthur E. Gammage, Capt., M. C., U. S. Army, Chicago, has returned from overseas, and has accepted an appointment as acting chief of the bureau of hospitals, under the department of health.

Licenses of Four Physicians Revoked.—The Illinois State Department of Registration and Education has revoked the following physicians' licenses for the reasons given: Dr. Henry G. Meyer of Chicago for unprofessional and dishonorable conduct; Meyer at present is serving a sentence in the Cook County Jail on the charge of pandering. Dr. Joseph M. Moses for seeking to obtain money and practice in his profession under false pretenses; he was arrested for this in the spring of 1917 and was sentenced to eighteen months in the penitentiary, and carried his case on appeal to the supreme court which, in June, 1919, sustained the action of the lower court; Dr. Moses is confined in the Joliet Penitentiary. He is said to have represented himself as an officer of the state board of health in connection with the case for which he was punished. Dr. John D. Young of Brookport, Ill., on the ground that he "is a person addicted to the use of morphin, opium, cocain or other drugs having a similar effect." Dr. Arthur L. Blunt of Chicago for unprofessional and dishonorable conduct in violation of the United States laws governing the use and dispensing of narcotic drugs. A previous action of the department revoking his license had been set aside by the court after the case had been carried to the supreme court of the state. Dr. Blunt at present is a prisoner in the federal penitentiary at Fort Leavensworth, Kan.

INDIANA

Held Under Charges.—Dr. Joseph H. B. Adams, Indianapolis, is reported to have been arrested, August 2, charged with having performed an illegal operation which caused the death of Mrs. Edna Bartrand. Dr. Adams was released under bonds of $1,000.

Tuberculosis Activities.—Dr. Marion A. McDowell, Peru, was elected president of the Miami Tuberculosis Society at the meeting, held August 3.——Irene Byron County Tuberculosis Hospital, near Fort Wayne, was dedicated with impressive ceremonies, August 10. The principal address was delivered by Dr. John N. Hurty, Indianapolis, secretary of the state board of health.

Overcharges by Druggists.—Dr. Hugo O. Pantzer, chairman of the committee formed by the Indianapolis Medical Society to investigate alleged exorbitant charges for prescriptions by Indianapolis druggists, reported that the committee had found cases of extraordinary prices, but that this was not general, and that the high prices now being charged are justified in many instances.

Personal.—Dr. Sterling P. Hoffmann, Decatur, has been appointed medical director of the Lincoln Life Insurance Company, Fort Wayne.——Dr. Horace C. Martindale, Pendleton, is under treatment in a hospital in Indianapolis.—— Dr. Frank E. Wolfe, New Albany, has been appointed medical examiner of the Modern Woodmen of America, for Indiana, succeeding his father, Dr. Zelotus C. Wolfe, Corydon.——Dr. Lewis N. Geisinger, Auburn, has been reappointed surgeon of the Michigan division of the P. C. C. and St. L. Railroad.——Dr. Cyrus W. Campbell, Hammond, is convalescent after a surgical operation.

MARYLAND

Physicians and Druggists in Raid.—In a raid made in Baltimore, August 9, in an effort to stamp out the illegal traffic in narcotic drugs, United States internal revenue officials and deputy marshals arrested seven physicians and three pharmacists.

Sanatorium Loses Site.—The opposition by the residents of Towson and vicinity to the proposed hospital for tuberculous negroes has been successful and it has been definitely stated that the hospital will not be located in that town. The option on the property held by the state, which adjoins the Eudowood Sanatorium, has lapsed and as yet no plans have been made to secure a new site.

Drug Clinic Urged.—Nothing but the inadequacy of the law stands in the way of solving the drug evil in Baltimore, according to the health officials, who are daily advocating a municipal clinic, with laws empowering magistrates to commit addicts to the ward. Medical men, including hos-

pital superintendents and specialists, and private practitioners have been clamoring for such an institution for months. United States authorities, especially those in charge of the prosecution of the violations of the Harrison Act, are unanimous in the belief that a city clinic would eventually end their troubles with drug cases. Addicts themselves want the hospital more than all the officials combined, for they want to be cured and realize that real cure lies only in a municipal institution. The drug evil in Baltimore has been brought to the attention of the public forcibly lately by the raids of the Federal authorities and by suicides because of the shutting down of the supply.

Personal.—Harry S. Purnell, Lieut.-Col., M. C., U. S. Army, former commandant at U. S. Army General Hospital No. 2, Fort McHenry, who established U. S. Army General Hospital No. 2 in August, 1917, and was in command until July, 1919, when he was succeeded by Col. Henry Page, has been ordered to Camp Custer, Battle Creek, Mich., where he will assume the duties of camp surgeon.——Dr. William S. Archer, Bel Air, sustained severe bruises and two fractured ribs when the buggy in which he was riding collided with an automobile bus near Bel Air, recently.——Dr. Henry O. Reik, Baltimore, has been secured as executive secretary of the New York Association for Medical Education and will devote his entire time to the development of the project.——Dr. Emil Goetsch, Baltimore, associate professor of surgery in Johns Hopkins University and surgeon to Johns Hopkins Hospital, has been appointed professor of surgery and visiting surgeon to the Long Island College Hospital, Brooklyn, director of the surgical service and head of the department of surgery throughout the college, hospital and dispensary.——Cranford H. Douthirt, associate professor of bacteriology at the University of Maryland, has been discharged from the army after two years' service at Fort Bayard, New Mexico.——Dr. Charles B. Ensor, who served as major in the medical corps in France, recently returned home.——Dr. Edward A. Luper, who recently returned after a year's service with the American Expeditionary Forces, has resumed his duties at the University Hospital.

NEW JERSEY

Personal.—Dr. John S. Conroy, Burlington, who went overseas with the 114th Ambulance Corps, was promoted to the rank of captain.——Thomas L. Rhoads, Col., M. C., U. S. Army, recently division surgeon of the Eightieth Division and head of the department of sanitation and civil affairs at the advance headquarters of the army of occupation, has taken over the duties of camp surgeon at camp Dix.——Mr. Frederick L. Hoffman, third vice president and statistician of the Prudential Insurance Company, Newark, sailed, August 2, for England, for the purpose of making an intensive investigation into the effects of war on insurance, including the methods and results of national health insurance in Great Britain. He expects to attend the annual meeting of the Eugenic Educational Society at Cambridge, and the meeting of the British Association for the Advancement of Science at Bournemouth, will represent the Eugenics Research Association in the interest of the forthcoming eugenic congress, will also, on behalf of the National Safety Council, visit the London Safety Council. He expects to return early in December.

NEW YORK

Sued for Typhoid Outbreak.—Seven suits for damages, aggregating $125,000, have been brought against Francis P. Garvan and his wife, Mrs. Mabel Garvan of New York, by residents of Saranac Lake, Tupper Lake, Malone and Plattsburg, because of an epidemic of typhoid fever among the men employed in the construction of Kamp Kill Kare on Nacquette Lake early in the summer of 1916. The men became ill between April 1, 1916, and July 5 of the same year. There were 129 men employed when the epidemic started and a number of them died.

New Hospital Buildings.—Contracts totaling $3,302,750 for new construction at state institutions for the insane and feebleminded are being let by the state this summer. Of this $1,100,000 will be spent at the Utica State (Marcy Division); $420,000, at the Middletown State Homeopathic Hospital; $478,330, at the Central Islip State Hospital; $350,000, at the Kings Park State Hospital; $175,000, at the Brooklyn State Hospital; $67,000, at the Hudson River State Hospital; $647,000, at Letchworth Village, and $65,420, at the Newark State School for Mental Defectives.

New York City

Narcotic Society Officer Held.—Christian F. J. Lasse, secretary of the American Medical Society for the Study of Alcohol and Other Narcotic Drugs, is reported to have been arraigned before State Commissioner Hitchock, August 9, and held under $5,000 bail, charged with trafficking in habit-forming drugs.

Personal.—Dr. S. Josephine Baker, director of the bureau of child hygiene, has been appointed a member of the advisory committee for the Federal Children's Bureau, Washington, D. C., and a special agent for the children's bureau in New York City.——Dr. Alphonse Raymond Dochez of the Rockefeller Institute for Medical Research has been appointed associate professor of medicine at the Johns Hopkins University.

Drug Addiction Made Reportable.—At a meeting of the board of health, held July 22, 1919, the following resolution was adopted: "Resolved that Section 1 of the Sanitary Code be and the same is hereby amended by adding thereto, a new subdivision, to be known as Subdivision 47, to read as follows: 'Pestilential Disease: Shall be deemed to include the conditions and symptoms resulting from the habitual use of habit-forming drugs, and known as drug addiction.'"

New Building for Health Department.—The erection of a new building for the health department has been made possible by an appropriation of $1,000,000 granted by the board of estimate. The new building will be brick, twelve stories high, and will occupy almost the entire area of the plot, 100 by 100 feet, in West Thirtieth Street between Seventh and Eighth Avenues, now occupied by the old Thirtieth Street Police Station. This building will permit the centralization of the health department under one roof and will make possible a closer coordination of effort and increased efficiency. Three or four floors of the new building will be given over to the work of the bureau of laboratories which is now scattered among a number of institutions. The building will have a large auditorium, and one floor will be devoted to a medical library.

Imported Smallpox Discovered.—A man having smallpox recently presented himself at one of the venereal clinics of the health department. He was found to be a member of the crew of a fishing vessel that recently discharged a cargo at Promised Land, L. I., and subsequently came into New York Harbor. Investigation revealed that another member of the crew was ill in Jersey City, and his case had been diagnosed as chickenpox. Two other members were ill at Promised Land. A committee appointed to investigate the situation found all these men suffering from smallpox. Since then eight additional cases have developed among the crews of this and a sister vessel. The United States Public Health Service has been advised of these facts with a view to having action taken that will bring to light the true situation in Nova Scotia from whence the vessels came and where it is reported smallpox is prevalent.

The Health Department and the High Cost of Living Crisis.—Health Commissioner Royal S. Copeland has issued a warning statement that the board of health would revoke the permit of any dealer in dry eggs, liquid eggs, or frozen eggs, or the proprietor of any slaughter house, caught hoarding food or profiteering. The board of health issues permits for such business and hence can revoke licenses "provided it does not act unfairly, tyrannically, unreasonably, or on false information and without reasonable ground for apprehending that the public safety, health, or welfare may be in danger." Governor Smith has expressed the opinion that the board of health should be placed in charge of all measures regulating the sale of foods and other necessities of life in this city. He states that "surely an insufficiency of food from whatever cause is a matter of public health" and is of the opinion that "through the board of health we may come on a solution of the problem."

Department Takes Sea View Hospital.—The health department has taken formal possession of the Sea View Hospital as a home for the treatment of drug addicts. Commissioner Royal S. Copeland estimates that there are about 2,000 addicts in urgent need of care and treatment and in order to provide such treatment he believes the use of the institution will be required until the first of the year. The tuberculous patients at the institution are being classified and transferred to other institutions. The taking over of the Sea View Hospital for the use of drug addicts does not meet with the approval of the committee on tuberculosis of which Dr.

James Alexander Miller is chairman. The committee has adopted resolutions protesting against the opening of this institution to drug addicts and copies have been sent to the mayor, Health Commissioner Copeland, Charities Commissioner Coler and members of the board of estimate. The communication expresses sympathy with Dr. Copeland's work in caring for drug addicts, but bases its protest on the ground that this use of the Staten Island hospital will deprive tuberculous patients of the superior advantages of Sea View. The Staten Island Civic League is taking drastic measures to prevent the treatment of addicts in the Staten Island institution.

OHIO

Smallpox at Youngstown.—The number of smallpox cases for Youngstown shows a decrease, as only eighteen were under quarantine, August 6, and as no new cases have been reported since July 21.

New Quarters for State Board.—The state department of health has leased the entire top floor of the Clinton Building, Columbus, and will transfer to its new locations all its offices, excepting the laboratory, which will remain on the university campus.

Selection of District Boards.—Meetings are being held throughout the state for the organization of local health administrative agencies. At the preliminary meetings the mayors of cities and chairmen will organize themselves into a district advisory council, and elect a board of health of five members, two of these members must be physicians, one a farmer and one an attorney.

Scientific Sessions of State Society.—The Ohio State Medical Association is holding a series of meetings throughout August and September. Meetings have already been held at Chillicothe, Bucyrus, Cedar Point, Bellefontaine, Portsmouth, and will be held at Canton, August 26; Zanesville, August 27; Athens, September 2; Marysville, September 4; Marion, September 11; Dayton, September 23, and Youngstown, September 25.

Physicians Under Charges.—Dr. W. G. Hamlin, Bloomdale, charged with practicing medicine without a license, is said to have pleaded guilty to three charges and to have been fined $25 and costs in each case. The fine is to be suspended in two cases providing the defendant quits the practice of medicine.——Dr. Robert S. Dunlap, Columbus, is said to have been arrested, July 30, on a warrant signed by Thomas Robinson, state drug department inspector, charged with the unlawful disposal of morphin.

Legal Duties of Physicians.—The state board of health is sending out information to all newly licensed physicians calling attention to the necessity of reporting all cases of inflammation of the eyes of the new-born, and of complying with the venereal disease regulations, which require reporting of all cases of venereal disease and instruction of all patients in the importance of guarding other persons against infection. The letter also gives full details in regard to the reporting of communicable and other diseases and outlines the free diagnostic facilities offered by the department laboratory.

Personal.—Dr. Harry H. Snively, Columbus, who was in charge of two base hospitals at Kiev, Russia, in 1915-1916, is a member of the Army Medical Expedition which has gone into Poland to combat typhus fever.——Charles W. Moots and P. Bruce Brockway, Toledo, and Verne A. Dodd and Frederick O. Williams, Columbus, Lieut.-Coms., U. S. Navy, have been promoted to the rank of commanders.——Dr. Arthur C. Taylor, health officer of East Cleveland for three years, has resigned.——Dr. Harold N. Cole, director of the bureau of social diseases of the department of health, Cleveland, has resigned, but will continue to serve in an advisory capacity.——Dr. Frances M. Hollingshead, Columbus, of the children's bureau of the state board of health has returned after service with the Child Welfare Bureau of France.——Dr. H. Nelson Amidon, Painesville, has been appointed coroner of Lake County succeeding Jotham F. Black, deceased.

PENNSYLVANIA

Personal.—Dr. Joseph A. Buckwalter, Royersford, was elected member of the board of directors of the Pottstown Homeopathic Hospital.——Dr. Edward E. Marsh, Centralia, recently returned, after service in Italy and France, has been elected superintendent of the Pottsville Hospital.

Measles Epidemic.—Jamison City, Columbia County, has an epidemic of measles. Two weeks ago every house in the village was placarded. Physicians thought they had the disease under control and a number of the quarantines were lifted, but August 14, eighteen new cases developed.

Tuberculous Suffer from Lack of Milk.—Claiming that more than 300 tuberculous patients are being treated at the local state dispensary, and that many are in need of milk because the state appropriation is inadequate to furnish a sufficient supply, Dr. Christian Gruhler, Shenandoah, made an appeal for the establishment of a fund to provide milk for about forty poor patients. The district comprises all towns north of the Broad Mountain. The work of the dispensary is handicapped by a shortage of milk, due to the inadequate state appropriation.

Philadelphia

Personal.—George S. Crampton, Lieut.-Col., M. C., U. S. Army, after fourteen months' service with the twenty-eighth division overseas, returned home, August 12.——Dr. Robert G. LeConte has received the cross of the Legion of Honor conferred on him by the French government.

Refuses State Funds.—Refusing $22,000 appropriated by the state, the Frederick Douglas Memorial Hospital has opened a campaign to raise $50,000. The recent legislature made the appropriation with the provision that Dr. Nathan F. Mossell, the founder, resign as superintendent and medical director. The board of directors refused to accept this condition.

Baby Welfare Workers Plan Convention.—A convention of baby welfare workers is being planned for the opening of the new dispensary and social service center of the Babies' Hospital of Philadelphia on the completion of the new building at Seventh and DeLancey Streets. In the new building there will be a few hospital beds for emergency cases, but the scheme of the center is to have a dispensary and hold daily clinics. Laboratories for experimental and research work, social service rooms and a complete roof garden for the use of mothers and their infants during the hot season are parts of the plan for the new building. Dr. Charles A. Fife is president.

New Department of Public Health.—The new charter has so affected the department of public health and charities as to separate the health work from its charity functions. Under the terms of the new law, there is a department of public health of which the director of public health is the head, appointed by the mayor with the advice and consent of the council. He is to have the power to appoint an assistant director, and such other officers and employees as may be provided for. The department has the care, management, administration and supervision of city activities relating to public health including hospitals, control of housing and sanitation, and collection of vital statistics. The board of health is to consist of the director of public health, as president, and two other members, who shall be appointed by the mayor with the consent of the council. Two of the members of the board must be physicians.

TEXAS

Quarantine Station Transferred.—The state quarantine system of Texas will be transferred to the United States Public Health Service this month. The original proposition of the state fixed a minimum price of $200,000 for the state quarantine property, but the individual appraisement made by the several state quarantine officers at their respective plants made an aggregate of $166,000. This includes all quarantine property, including the buildings, ground, and the equipment for disinfecting and detention. Improvements to the station at Galveston are being made which will cost about $40,000.

Personal.—The Hunt County Medical Society has adopted resolutions commending the labors of Major Charles E. Cantrell, Greenville, who was recently appointed district inspector-instructor in the United States Public Health Service with station at Corpus Christi. Major Cantrell was also presented with a gold headed umbrella. Major Cantrell's district includes the states of Texas, Oklahoma, Arkansas and Louisiana.——Dr. William P. Meredith has been appointed resident physician at the new Houston City Hospital.——Dr. Abner P. Howard has resigned as health officer of Vernon, and has been succeeded by Dr. Sumrow S. Greene. ——Dr. H. C. Hall, acting assistant surgeon, U. S. P. H. S., Austin, has resigned as director of the bureau of venereal disease of the Texas Board of Health.——Dr. Frank N. Haggard, San Antonio, who recently returned from France, has

been appointed surgeon for the International and Great Northern Railroad for the Taylor and Laredo districts.——Dr. Herbert F. Gammons has been appointed superintendent and medical director of Woodlawn Hospital, Dallas, the county sanatorium for Dallas County.

CANADA

Medical Associations.—The fourteenth annual meeting of the Alberta Medical Association will be held in Calgary, September 1 to 3, under the presidency of Dr. Daniel G. Revell, Edmonton.

Appeals from Action of Society.—On the ground that there is no evidence that he was convicted of an indictable offense, Dr. L. N. Cherniak, Windsor, whose name is said to have been stricken from the rolls of the Ontario Medical Society on account of having been fined for illegal use of liquor prescriptions, has taken an appeal against the action of the society.

Hospital News.—A medical clinic has been established at Dauphin, Man. It is the only medical clinic in Manitoba in which all the medical men are united.——Calgary, Alta., has planned a hospital scheme to cooperate with the militia of Canada. The hospital building at present under construction in Calgary is to cost about $20,000. The city will build another extension if the government will cooperate, and is prepared to go to the extent of $60,000. Should the government join in, Calgary will have its soldiers' hospital benefits centralized.——A new $250,000 union hospital scheme is on foot for Moose Jaw, Saskatchewan, which is provided for in the Union Hospital Act of that province.

Public Health.—Edmonton, Alta., has been chosen as the place for the 1920 convention of the Canadian Public Health Association and Ontario Health Officers' Association. Dr. Heber C. Janieson, Edmonton, speaking recently on child welfare work, said that Alberta had considerably more trouble with the 33.6 per cent. of foreign-born children than with the remaining 66.4 per cent. British born, owing to the foreigners of that province holding to their traditions and refusing to adopt the methods in vogue in Canada.——Sixty per cent. of the inmates of jails in Manitoba are feebleminded, according to a report of Dr. Clarence M. Hincks, Toronto, of the Canadian Mental Hygiene Commission. It is estimated that every incurable patient detained in the hospitals for the insane in that province costs the Manitoba government from $5,000 to $7,000.

Personal.—Col. Evans G. Davis, C. M. G., London, Ont., has been appointed A. D. M. S. for the Canadian Soldiers' Civil Reestablishment, in the place of Lieut.-Col. F. McKelvey Bell, Ottawa, Ont., resigned.——Major Thomas D. Archibald, recently in command of the Toronto Military Base Hospital, has reentered private practice in Toronto and will devote his attention to anesthetics.——Lieut.-Col. John M. Nettleton is now in charge of the Spadina Military Hospital, Toronto, but will shortly joint the medical staff at Ottawa.——Brig.-Gen. Ernest C. Ashton, Brantford, Ont., is moving to Ottawa, where he has been appointed to a permanent position in the C. A. M. C.——Col. William B. Hendry, Toronto, lately in command of the University of Toronto Base Hospital, has been appointed associate professor of obstetrics and gynecology in the University of Toronto.——Prof. Andrew Hunter has been appointed professor of biochemistry in the University of Toronto, vacant through the resignation of Professor Robertson.

GENERAL

Personal.—Major-Gen. William C. Gorgas, U. S. Army, retired, chairman of the yellow fever commission of the Rockefeller Foundation, arrived in New Orleans, August 6, on his way to Salvador, Central America, where cases of yellow fever have been reported.

Missouri Valley Physicians to Meet.—The thirty-second annual meeting of the Medical Socity of the Missouri Valley will be held in Des Moines, Iowa, September 18 and 19, under the presidency of Dr. Charles Wood Fassett, Kansas City, Mo. Headquarters will be at the Hotel Fort Des Moines.

New Naval Hospital.—July 24, the new Naval Hospital at Charleston, S. C., was thrown open for inspection. The hospital is situated north of the Navy Yard reservation, overlooking Cooper River, and has a capacity of 1,000 beds. The hospital was constructed under the supervision of Will M. Garton, Com., M. C., U. S. Navy, and has cost more than $1,000,000.

Public Health Association Meeting.—The annual meeting of the American Public Health Association will be held in New Orleans, October 27 to 30, under the presidency of Dr. Lee K. Fraenkel, New York City. The central themes taken up will be, southern health problems, including malaria, typhoid fever, hookworm, soil pollution and the privy, etc., and there will also be discussions on the attitude of legislators toward public health, the securing of appropriations and cooperation for women's clubs, health organization, and the organization of health centers, and two special programs will also be presented on various phases of child hygiene and personal hygiene.

Bequests and Donations.—The following bequests and donations have recently been announced:

Jewish Hospital Association, Philadelphia Jewish Sanitarium for Consumptives and the Federation of Jewish Charities, each $500 by the will of the late Emma T. Lesen.

Society for Improving the Condition of the Poor of New York, and Orphaned Chidren's Home, Utica, each $1,000 by the will of Dr. John Henry Thompson, New York City.

Wesley Memorial Hospital, Chicago, $5,000 by the will of Mrs. Sarah A. Pond, in memory of her late husband Walter M. Pond.

The creation of the Rosa Spang Foundation for the Relief of Poverty and Disease, and especially for the benefit of abandoned babies, $1,000,000 by the will of Mrs. Rosa B. Spang, New York City.

Visiting Nurse Association of Chicago, to be used for the employment of nurses, a donation of $12,500, by Bernard A. Eckhart.

License to Practice in All States.—A bill to license physicians under the federal government to permit them to practice in any state of the Union has been introduced by Representative Mason. The measure provides that any person who has taken a full four years' course in a professional medical school and who has been granted a state license, or any person who has been admitted to practice medicine and has practiced for at least five years, may obtain a license to practice in any state in the Union by paying a fee of $10 to the Secretary of the Interior. The licentiate must have his license recorded with the department of health in the state in which he intends to practice. The bill is numbered H. R. 8313, and it has been referred to the House Committee on Interstate and Foreign Commerce for consideration.

The Care and Treatment of Drug Addicts.—A measure appropriating a total of $5,000,000 for federal assistance to the state health agencies for caring for and treating drug addicts has been introduced by Senator Joseph I. France, chairman of the Senate Committee on Sanitation and Public Health. The Secretary of the Treasury is authorized to divide the appropriation among the states, to be payable only if the respective states by official or private subscription raise a similar amount. The sum of $3,000,000 is authorized to be expended before July 1, 1920, and $2,000,000 is made available for the following year. One fifth of this amount may be expended to collect and spread information regarding the care and treatment of drug addicts. Any hospital equipment held by the army and navy which is not in use is to be transferred to the Treasury Department for the use of drug addicts. The Secretary of the Treasury is charged with the enforcement of the act.

FOREIGN

Hospital Opened in Siberia.—To meet an emergency of hospital work, for wounded Russians, the American Red Cross has opened a large hospital at Cheliabinsk under the care of Dr. Henry W. Newman.

Tuberculosis in French Soldiers.—In a discussion in the French Senate, July 12, it was stated that 25,000 French soldiers had died from tuberculosis during the war, and that 120,000 men had been exempted from service because of the disease.

Influenza in Portugal.—The *Medicina Contemporanea* of June 1, just received, states that the deaths from influenza at Lisbon during the preceding two weeks had been more than the total deaths from all causes during the preceding four months.

Achúcarro Prize Awarded.—The foundation of the prize in memory of Achúcarro, the Spanish histologist, was mentioned recently, June 7, 1919, p. 1690. As the first award, it has been given to the director of the laboratory of histopatology connected with the Junta de Ampliacion de Estudios at Madrid, Dr. Pio del Rio Ortega. The prize is to be

awarded every two years and alternately to a Spanish and foreign histologist for the best work during the preceding four years.

Typhus Train.—A report of the Allied Antityphus Train, which has been operated in Siberia under the charge of Capt. Rudolph Bukely, under the direction of the American Red Cross, states that it has handled 20,000 men during the six months the train has been in operation. The reputation of the train as an effective weapon in fighting typhus is widespread.

Serbian Relief.—The medical section of the Red Cross Commission in medical and general relief work in Serbia is composed of eighteen physicians of the Medical Corps and Sanitary Corps of the Army under the direction of Lieut.-Col. Edgar E. Hume, M. C., U. S. Army, Frankfort, Ky. One of the medical members of the commission died from pneumonia while on duty at Semendria.

Earnings of German Manufacturing Chemists.—The *Riforma Medica* states that the Farbwerke vorm. Meister, Lucius and Brüning firm at Höchst on the Main paid a dividend of 12 per cent. in 1918; in 1917 the dividend was 18 per cent., and in 1916, 25 per cent. The corresponding firm at Ludwigshafen paid out a dividend also of 12 per cent. in 1918; in 1916 the dividend rate was 20 per cent.

Relief Commission to Kuban.—A relief commission in charge of an American Red Cross unit has left St. Nazaire for the Kuban district of Russia to carry medical supplies, food and clothing for the needy civilians and soldiers in that district. The commission will carry a complete equipment for an army field hospital, and will be headed by Major Robert Davis, New York, and Capt. Henry Adams, Boston.

Fellowship of Medicine Forms Committee for Literature Interchange.—Under the authority of the Fellowship of Medicine of Great Britain, an Anglo-American committee has been formed, whose chief aim is to bring about a better interchange of medical literature of both countries. A committee has been formed in London to secure publication of American articles and to send British articles to American publications. It is announced that a similar committee is to be formed in America.

American Hospital in Great Britain.—The American Hospital for Great Britain was founded July 17 at a special meeting, in the Royal College of Physicians, the Earl of Reading presiding. A governing council with the American ambassador as chairman, was appointed, and two medical committees—one for Great Britain and the other for the United States—were constituted. The committee for the United States consists of Drs. George W. Crile, William J. and Charles H. Mayo, Albert J. Ochsner, Rudolph Matas and Franklin H. Martin.

The Army Medical Department in the Victory Parade at Paris.—The *Bulletin Médical* of Paris relates that, for the first time in history, the chief of the medical department of the army was called to a place with the commander-general in the great victory parade. Médecin-inspecteur Toubert, aide-major général du Service de Santé, rode with the group of aides-majors généraux immediately following Maréchal Petain. The students of the Military Medical Academy marched beside the students of the Saint-Cyr Academy, an institution like our West Point. Among the twenty-four medical students were many decorated with the insignia of the Légion d'honneur and all wore the fourragère with palms and stars. All these medical students had served in the front lines.

Congress of French Gynecologists and Accoucheurs.—For the second time, the official announcement is published that the First Congress of the Association des gynécologues et obstétriciens de langue française is to be held in the fall. The first time the date was set for Oct. 1, 1914, and the addresses had already been printed when the war broke out, and all not connected with the war was dropped. The approaching meeting is to be held at Brussels, September 25, and the same subjects as before have been appointed for discussion. Every city in France with a medical school has a local society of gynecologists and obstetricians, and the federation of these societies with those of Latin Switzerland and Belgium forms the Association of French-Speaking Gynecologists and Accoucheurs. The subjects to be discussed are the biologic diagnosis of pregnancy; early release from bed after childbirth and operations; uterine cancer; preferred incision for laparotomies; indications and technic for hysterectomy in treatment of suppuration in the adnexa; and welfare work for pregnant and nursing factory workers.

LATIN AMERICA

Friction Between Druggists and Pharmacists.—Friction has been aroused between drug store owners and graduate pharmacists of Chile over a sanitary law pending in the chamber of deputies, under which the owners would be permitted to operate their business without the control of the pharmacists.

Yellow Fever.—Strict sanitary regulations and the prohibition of maritime traffic between the two towns and other ports, at La Union, and San Miguel, San Salvador, have apparently checked an outbreak of yellow fever.——Because of reports of the prevalence of yellow fever in Northern Peru, the board of health of Ecuador has closed all ports of that republic to vessels arriving from northern Peru.——An outbreak of yellow fever is reported from Piura, Northern Peru.

New Disease in Peru.—In the city of Piura there have occurred recently a number of cases of a suspicious disease. The cases so far have all occurred in the jail and there have been five deaths. There is some discrepancy of opinion among the local physicians, some of whom believe it is yellow fever while others think it is a new disease. All the patients have been isolated and the American physician who is in charge of the sanitary campaign at Lima has been requested to assume control of the epidemic.

PARIS LETTER

Paris, July 24, 1919.

Congress of French Surgeons

The twenty-eighth congress of the Association française de chirurgie will open at Paris, at the Paris School of Medicine, Oct. 6, 1919, under the chairmanship of Dr. C. Walther. The questions proposed for discussion at the congress are: (1) closed traumatic lesions of the wrist; (2) surgical treatment of cancer of the tongue, and (3) paranephric tumors.

Decrease in the Birth Rate

In his report on the number of children receiving charitable assistance in the department of the Seine, M. Rebeillard has pointed out the lamentable decrease in the birth rate. The number of births in the department of the Seine has decreased from 73,599 in 1911 to 47,480 in 1918. During the past year the number of abandoned children reached 3,149. Furthermore, the percentage of children turned over to the Assistance publique, according to the birth rate reports, has increased from 4.9 per cent. in 1911 to 6.63 per cent. in 1918, having reached the highest mark, 6.9 per cent., in 1916.

The situation is all the more grave owing to the fact that, at the same time, almost all the wetnurses have disappeared, which exercises a paramount influence on the increase in infant mortality, which for babes under 1 year has jumped from 10.66 per cent. before the war to 40 per cent. in 1918. The number of nurses that the Assistance publique was able to secure from the rural districts during the year decreased from 1,353 to sixty-five. In order to make up for this dearth of nurses, centers for artificial feeding have, to be sure, been established; but conditions are considered so deplorable that the government has begun on a new basis the rational organization of the feeding of infants.

With a view to bringing about an increase in the birth rate, the general council of the department of the Seine, at the instance of M. Emile Desvaux, has submitted the request that the legislature lower to 25 the age for attaining full matrimonial majority. (By matrimonial majority is meant the age at which one acquires the right of marrying without the consent of one's parents. In some countries, a written refusal signed by the parents is still required after one attains matrimonial majority, provided the marriage is opposed by the parents, before one is permitted, according to law, to proceed with the nuptials.—Ed.)

Congress of French-Speaking Gynecologists and Obstetricians

The Association des gynécologues et des obstétriciens de langue française will hold its first congress in Brussels, Sept. 25-27, 1919, under the patronage of the king and queen of Belgium. The meetings will be held in Parc Léopold, at the Institute of Physiology.

The Organization of Physical Education

In order to promote the use of gymnastic exercises among the youth of the land, the president of the Conseil des ministres has adopted various measures with a view to securing the cooperation of the army and the heads of public instruction. With this idea in mind the council has addressed a

circular to the regional commanders and to those in charge of centers for physical instruction, including military preparatory schools. In this circular the order is given to grant to teachers and pupils free access to regional centers, and provision is made for the installation of vacation camps and for the organization throughout the entire territory of vacation courses in physical education.

Vaccination Against Smallpox

In a preceding letter I called attention to the epidemic of smallpox which occurred recently in Paris (THE JOURNAL, Aug. 2, 1919, p. 350). The prefecture of the department of the Seine has again called the attention of the public to the necessity of being vaccinated against smallpox. Every week, in the different sections of Paris, free vaccination is offered. Posters about the city indicate the time and place for securing vaccination.

A Gift to the Museum of Natural History

The Jardin des plantes de Paris and the Muséum d'histoire naturelle, owing to the lack of sufficient appropriations, have not kept pace with the needs of the times, and the buildings at their disposal are unworthy of their renown and of the place that they hold among scientific institutions by reason of their rich collections. The Société des amis du muséum, the president of which is M. Léon Bourgeois, former president of the Conseil des ministres, has been founded for the purpose of working toward the rehabilitation of the Jardin des plantes, the adjoining museums, the galleries, the research laboratories and the courts which go to make up this grand national institution. M. Basile Zaharoff, desiring to aid in this work of rehabilitation, has made a gift of 500,000 francs to the Muséum d'histoire naturelle, to be used in its restoration, enlargement and improvement.

An American Woman the Recipient of the Decoration of the Legion of Honor

Dr. Louis Mourier, undersecretary of state for the army medical department, has bestowed on Miss Bishop the cross of a knight of the legion of honor. Since the beginning of the war this energetic American woman has given France unlimited proof of her intelligence in the administration of welfare work. Since 1916 she has been employed in the hospitals outside of Paris in the care of the wounded. In 1917 she established in Paris a foyer du soldat for the "on leave" men from the invaded districts. At Soissons she was instrumental in installing a hospital under a terrible bombardment. After the signing of the armistice she organized relief stations at Cambrai. At the present time she is still engaged in the devastated regions relieving, where possible, misery and distress.

Death of Dr. Demoulin

From Saint-Lon (department of Landes) news has come of the death of Dr. A. Demoulin, a Paris hospital surgeon and consulting expert of the tribunal civil de la Seine.

Personal

Dr. Maillard, professor of pathologic chemistry at the Paris School of Medicine, has been appointed professor of biologic chemistry at the Alger School of Medicine and Pharmacy.

M. Paul Appell, dean of the Faculté des sciences de Paris, has just resigned the duties of the office that he has held for sixteen years. He has been succeeded by M. Houssay, professor of zoology of the Faculté des sciences de Paris.

Dr. Policard, professor on the faculty of the Lyons School of Medicine and Pharmacy, has been appointed professor of general anatomy and histology in the same institution, in place of Professor Renaut, who has been allowed to take advantage of his right to retire.

Dr. Mouriquand, professor on the faculty of the Lyons School of Medicine and Pharmacy, has been appointed professor of general pathology and therapeutics in the same institution, in place of Professor Lesieur, deceased.

American Students in French Universities

More than 5,000 American officers and private soldiers have pursued courses in French universities during the past few months. The American soldier-students have recently given expression, in a delicate manner, to their gratitude to their French instructors. They have raised by subscription among their number more than 70,000 francs. This sum is to be divided among the fourteen French universities that have received American students. At the opening of school in the fall fourteen French students will sail for the United States, where they will pursue a course of study for a year at some American university.

Child Welfare

L'Institut de puériculture, of the founding of which I have already spoken in a previous letter, a project which owes its origin to the gift of 1,000,000 francs from the American Red Cross and a like sum raised by subscription in Paris (THE JOURNAL, June 14, 1919, p. 1781), met recently at the Paris School of Medicine for the purpose of organizing a permanent society. M. Lucien Poincaré, rector of the University of Paris, presided at the meeting, being assisted by Professor Roger, dean of the Paris School of Medicine, M. Mesureur, director of the Assistance publique, and nearly all of the faculty of the Paris School of Medicine. Dr. Kennett Wygatt represented the American Red Cross. After an address by Professor Roger, in which he pointed out what part the School of Medicine was expected to play in this undertaking, Professor Pinard, in a few words, gave expression to his great joy in seeing realized an idea which he, conjointly with all the gynecologists and pediatricians of France, had supported for so long. It should be stated in this connection that the Children's Welfare League of America has contributed to the institute the sum of 500,000 francs.

The Campaign Against Tuberculosis

The senate has recently passed the bill establishing special sanatoriums for the treatment of tuberculosis and fixing the conditions for the admission of patients (THE JOURNAL, April 12, 1919, p. 1092). The bill provides that the state, under certain guaranties, will assume the expense of establishing these sanatoriums, and it is thought that these state establishments will set a good example for private institutions.

LONDON LETTER

LONDON, July 25, 1919.

British Versus German Science

At the annual meeting of the Society of Chemical Industry, Prof. H. Louis, the president, stated in his address that the one great fact that emerged from the war was that our chemical industry had shown itself capable of sustaining successfully the fiercest and most strenuous competition. Utterly unprepared for war conditions, it had shown itself more resourceful, more energetic, and more successful than any had dared to hope. We could never have built up so rapidly this vast edifice of chemical industry if the foundations on which we had to build had not been thoroughly sound. He saw in these results a triumphant vindication of the thesis that in the teaching of science, and more particularly of scientific technology, we were quite on a par with any other nation. It had often been urged by those who looked on German educational methods as the acme of perfection that we ought to model our methods of technical teaching on German lines. This war had shown that our teachers, who had stedfastly adhered to the methods that suited our national idiosyncrasies, were justified. We could certainly learn much of the organization of scientific education and much of the respect due to science from our enemies, but we should adhere to our own essentially British methods of technical education. Germany had for forty years been applying her science to warfare, but the science which we possessed available for such application was of a far higher order, and we had been able to beat our enemies at all points. We had beaten Germany in war because of our superior productivity; we produced more of the essentials needed in warfare than did our enemies—more ships, more guns, more explosives. What was true of warfare was equally true of the less spectacular but no less severe competition of peace; if we were to hold what we had gained, it could only be by maintaining our productive capacity and increasing our outputs. This was a task that could not be accomplished by scientists and technologists alone; they could but devise and organize the methods by which the work was to be done; but they must call on the body of workers of the country to execute them. He had worked in many lands and had employed men of many different races and different nationalities, and he could say without hesitation that the British working man had no superior as a workman, if he only chose to work, and he therefore saw no reason why he should produce less effectively than any of his competitors.

Mothercraft

At the National Birth Rate Commission, Dr. Eric Pritchard gave evidence that 26 per thousand infants were born with malformations and physical defects of development which

rendered the satisfactory carrying out of the functions impossible. The remaining deaths out of the total number, namely, 70 per thousand births, were due to causes that could not be referred to any demonstrable defects at the time of birth. About 40 deaths per thousand births were attributed to infectious diseases of one kind or another. The remaining deaths were due to miscellaneous diseases, including a large number under the classification of wasting, debility and marasmus. Infections were responsible for much the largest number of the deaths during the first year of life. A much larger number of infants died from unrecognized infections than was usually believed. New-born infants could not defend themselves against a large number of quite simple organisms to which older individuals were completely immune, or of which they might be the "carriers" without detriment to themselves.

Good mothercraft, which practical experience proved to be efficacious in preserving the life of the infant, was knowingly or unknowingly designed to preserve the natural defenses of the body against bacterial invasion, or to maintain or raise the degree of tissue immunity. The artificially fed infant more easily fell a victim to vicarious infection. Further, by the damage inflicted on the digestive tract by unsuitable foods, before the digestive organs had developed their normal functions, the infant was exposed to the entrance of organisms through the areas of lessened resistance. Artificially fed infants, and especially those fed on patent foods containing a great excess of sugar, were notoriously nonresistant to infectious disorders. The sources of infection were even in the best circumstances manifold, but in slum areas where the infants shared the same room with several other individuals, these dangers were greatly magnified.

Dr. Halford Ross, late health officer, Suez Canal Zone, also gave evidence. He said that from observations in that zone it would seem that there was a constant correlation between birth rates and death rates. As one increased, the other increased; if one was reduced, the other fell. In a certain place a serious epidemic of plague occurred in 1907. The death rate rose higher than the birth rate for three weeks, but soon the birth rate rose and regained its former relation with the death rate, which remained high for a time. Then both fell together to their original level as soon as the plague disappeared. A similar correlation of birth rate and death rate was noticed in Cairo in 1910 during a severe fatal outbreak of smallpox. This correlation of births and deaths made any measures taken to modify their rates appear futile, because their relation seemed to follow a natural law, which at present was not understood. Our aim, then, should be to prevent all disease, so that infants when born were healthy and remained healthy through life. In that way the most efficient population could be obtained.

Medical Certificates of Fitness for Marriage

At a conference on public health, Sir Malcolm Morris recently expressed the view that no marriage ought to take place without a medical certificate on both sides. But it is doubtful whether prevailing sentiment would allow this to be carried out. Interviewed on the subject by a representative of the *Daily Sketch*, Sir Malcolm stated that to a certain extent it was adopted in America, and that there were few instances of the kind in this country. But if public opinion set up such a custom in this country, then the medical profession would require legislative protection. If a physician, after examining a patient, had to advise the parents of a girl that it was not advisable for her to marry him, then protection by law would be necessary.

Although Sir Malcolm Morris does not suggest that there should be legal enactment, making the issue of such certificates imperative, Dr. Neal, the secretary of the Medical Defense Union, thinks it would be utterly impossible to bring about legislation of this kind. "While from a medical point of view such a step might be desirable, on sentimental and other grounds, there is something very repugnant about the idea," he remarked. "Just imagine the feelings of a decent young man at the very suggestion, on the part of his parents, that he must obtain a certificate that his prospective bride is free from disease! It would not be merely a gross reflection on her purity, but would imply that she was a woman of very abandoned type."

Experimental Medicine and the War

At the annual meeting of the Research Defense Society, Sir Anthony Bowlby, consulting surgeon to the British armies in France, spoke on experimental medicine and the sick and wounded in war. The British army had been the healthiest of all the armies engaged; its sick wastage was less than any other. The reasons were, in the first place, that the average man in this country was a cleanly animal, and understood and followed advice which was evidently reasonable; and, in the second place, the army medical service, as a body of experts trained in hygiene and preventive medicine, was unequaled in any country. Every one was aware of the small incidence of typhoid fever in the war, but there were people who were trying to explain away the value of the prophylactic inoculation by saying that the comparative freedom from typhoid was due to improved hygiene. Even were this true, the fact would remain that the hygiene of today was based on the experimental medicine of yesterday; but preventive inoculation was to a large extent the real cause of the immunity. This was proved by the unfortunate instance of the French troops who, in the early days of the war, hurrying to save their frontier, went out uninoculated. The result was that between August, 1914, and the following April there were as many cases of typhoid in the French army as were recorded in the South African war. The strength of the army was wasted to the extent of 60,000 men. The great prevalence of tetanus was not anticipated at the beginning of the war, so that at first the supply of prophylactic serum was not proportionate to the number of troops. Supplies of antitetanic serum were obtained as quickly as possible, and by the end of October, 1914, large quantities became available. Its value was shown by the fall in the ratio of tetanus cases to the number of wounded. The ratio in September, 1914, was six times as high as it became in November, and nine times as high as it became in December. A book might be written on experimental medicine which had been actually developed during the war. A great deal had been learned with regard to gas gangrene, in particular that three organisms were concerned, which accounted for the comparative failure of serum treatment. Toward the end of the war a trivalent serum was produced which, in the opinion particularly of the French authorities, was of great value, although it did not do enough. Valuable work on the mode of dissemination of trench fever was done as a result of the action of British and American volunteers, who subjected themselves to the attack of infected lice. Much had been learned also with regard to dysentery, both the amebic and the bacillary form; it was found possible to prevent spread and to expedite cure. Dysentery first developed in the British army as a result of the success of the Battle of the Somme in 1916, when the men entered the territory which had been occupied by Germans suffering from the disease. In conclusion, Sir Anthony mentioned the discovery of filter-passing organisms by Sir John Rose Bradford and Captains Wilson and Bashford. He had no doubt whatever that this discovery would throw a flood of light on the whole of the zymotic diseases encountered in civil life.

Army Medical Memorial Service

A service in memory of the 568 officers and 4,634 other ranks of the Army Medical Corps who gave their lives in the service of the country during the war has been held at St. Paul's Cathedral. Among those present were Princess Helena (representing Princess Christian); Princess Louise, Duchess of Argyll; Princess Beatrice; Col. Sir H. Streatfeild (representing Queen Alexandra); Sir John Goodwin (Director-General); Lieut.-Gen. Sir Alfred Keogh; Lieut.-Gen. Sir Lancelot Gubbins, and Lieut.-Gen. Sir Arthur Sloggett. Selections played by the Grenadier Guards included the "Marche Funèbre et Chant Séraphique" (Guilmant); the "In Memoriam" Overture; Massenet's "Bénédicta," and Beethoven's "Equale." The buglers of the Army Medical Corps sounded the "Last Post" and the "Reveille."

Marriages

Edward Augustine Stapleton, Albany, N. Y., to Miss Sarah Gertrude McGoarty of Wilkes-Barre, Pa., at Greenwich, August 2.

Robert Finley Gayle, Jr., Lieut., M. C., U. S. Army, New York City, to Miss Elizabeth Marshall Cole of Raleigh, N. C., August 16.

Fred DeForest Streeter, Central Islip, N. Y., to Miss Alice Sherwin of Manchester, Vt., July 25.

Herman Carl Jungblut to Miss Johanna Stehn, both of Tripoli, Iowa, recently.

Richard Ambrose Roche to Miss Ruth Wilkie, both of Chicago, August 6.

Deaths

Otto Augustus Wall, Jr. ● St. Louis; Missouri Medical College, St. Louis, 1898; aged 45; associate professor of materia medica and pharmacognosy and lecturer on accidents and emergencies in the St. Louis College of Pharmacy; associate medical director of the International Life Insurance Company, St. Louis; at one time editor of the *Weekly Bulletin of the St. Louis Medical Society;* died in Barnes Hospital, St. Louis, August 4, from heart disease.

Henri Michel Auger, Jamaica, N. Y.; University of Buffalo, N. Y., 1886; aged 62; for several years physician to the Jamaica Board of Health and assistant medical examiner for the Long Island Railroad; one of the founders of St. Mary's Hospital, Jamaica, and a member of the staff of the Jamaica Hospital; died at his home, August 5, from rheumatism.

John Francis Bourke ● **Lieut., M. C., U. S. Army,** Jamaica, N. Y.; College of Physicians and Surgeons in the City of New York, 1905; aged 39; post surgeon at Souther Field, Americus, Ga.; formerly instructor in diseases of the digestive system in Fordham University, New York City; died in his office at Souther Field, July 28, from cerebral hemorrhage.

Franklin S. Bower, Philadelphia; College of Physicians and Surgeons, Baltimore, 1881; aged 60; first president of the North Philadelphia, afterward the Samaritan Hospital, Philadelphia; a member of the Medical Society of the State of Pennsylvania; died at his home in North Philadelphia, August 1, from nephritis.

Joseph W. Applegate, Green Cove Springs, Fla.; Jefferson Medical College, 1862; aged 84; surgeon of U. S. Volunteers during the Civil War; for many years a druggist of Franklin, Ind.; for thirty-five years owner and manager of a hotel at Green Cove Springs; died at his home from ciliary dysentery.

William H. Aber, Aullville, Mo.; Beaumont Hospital Medical College, St. Louis, 1897; aged 49; a member of the Missouri State Medical Association; while driving his automobile over a grade crossing at Higginsville, Mo., August 2, was struck by a Chicago and Alton train and instantly killed.

J. Lindsey Hill, Albany, Ore.; Willamette University, Salem, Ore., 1871; aged 74; for several years an instructor in his alma mater; at one time mayor of Albany; founder and president of a local insurance society known as the "Twenty-Five Hundred"; died at his home, August 3.

Charles E. Hansel ● South Bend, Ind.; University of Illinois, Chicago, 1897; aged 45; a member of the Central Pediatric Society; president of the board of health of South Bend; died suddenly at the South Bend Country Club, August 3, from heart disease.

Daniel F. Gleason, Brooklyn; Jefferson Medical College, 1875; aged 62; formerly chief inspector for the Brooklyn Board of Health; for the past fifteen years a detective for the Pinkerton Agency; died at his home, August 3, from heart disease.

William Cecil Leavenworth ● Augusta, Ga.; University of Virginia, Charlottesville, 1917; formerly acting superintendent of Johns Hopkins Hospital, Baltimore; superintendent of the University Hospital, Augusta; died, July 29.

Jacob F. Marchand ● Canton, Ohio; University of Pennsylvania, Philadelphia, 1887; aged 61; surgeon to the Aultman Hospital for twenty years; consulting surgeon to Mercy Hospital; died at his home, July 31, from diabetes.

Mary Elizabeth Stanford, Chicago; Chicago Physio-Medical College, 1897; aged 53; professor of physiology in the Chicago College of Medicine and Surgery; died at her home, August 14, from myocarditis.

Charles Frederick Miller, Los Angeles; University of California, San Francisco, 1874; aged 71; a member of the Medical Society of the State of California; died at his home, July 22, from senile debility.

Samuel Trimble, Lima, Pa.; University of Pennsylvania, Philadelphia, 1867; aged 76; a member of the Medical Society of the State of Pennsylvania; died at his home, August 7, from disease of the kidney.

Frederick Chandler, Mechanic Falls, Me.; Bowdoin Medical Schoool, Brunswick and Portland, Me.; 1877; aged 67; died at his home, June 10, from arteriosclerosis.

● Indicates "Fellow" of the American Medical Association.

Thomas Mutter Allison, Kittanning, Pa.; Jefferson Medical College, 1872; aged 70; a member of the Medical Society of the State of Pennsylvania; died at his home, June 3, from pulmonary tuberculosis.

Edric Allen Wade, Salem Depot, N. H.; Harvard University Medical School, 1879; aged 68; died in the Massachusetts General Hospital, July 16, following operation for the removal of gallstones.

Clarence T. Lewis, Staunton, Va.; George Washington University, Washington, D. C., 1878; aged 66; a member of the Medical Society of Virginia; died at his home, July 19, from tuberculosis.

John Howard Sherman, Boston; Castleton (Vt.) Medical College, 1857; aged 88; for several years medical inspector in the public schools of Boston; died at his home in South Boston, August 2.

James Moon Salmon, Simcoe, Ont. (qualification, 1847, medical board, Kings College, Toronto, Ont., license, Toronto, 1866); aged 95; died at his home, June 17, from arteriosclerosis.

Algernon M. Sargent ● Lincoln, Ill.; Medical College of Ohio, Cincinnati, 1880; aged 62; a director in the Lincoln National Bank; died at his home, August 3.

James E. Glenn ● Fairfield, Pa.; College of Physicians and Surgeons, Baltimore, 1891; aged 53; died at his home, August 4, from cerebral hemorrhage.

Lauren Milton Lindenberger, Troy, Ohio; Bellevue Hospital Medical College, 1880; aged 69; died at his home, in Troy, July 23, from angina pectoris.

George M. Ross, Schell City, Mo.; Missouri Medical College, St. Louis, 1883; aged 58; died in Moundville, Mo., May 23, from cirrhosis of the liver.

Aaron C. Vaughan, Rockford, Ohio; University of Pennsylvania, Philadelphia; 1858; aged 83; died at his home, about July 17, from senile debility.

George Gregg, Ashland, Ohio; Western Reserve University, Cleveland, 1868; aged 80; died at the home of his daughter in Ashland, August 3.

Rufus Henry Allen, Nashville, Tenn.; University of Nashville, Tenn., 1900; aged 46; died in an infirmary in Nashville, August 5, from pneumonia.

William Smith Mecklem ● Mansfield, Ohio; University of Wooster, Cleveland, 1880; aged 57; died at his home, July 28, from cerebral hemorrhage.

Frederick John Kruell ● Hollywood, Los Angeles; Rush Medical College, 1881; aged 66; died at his home, July 29, from cerebral hemorrhage.

James A. Houser, Indianapolis; Toledo (Ohio) Medical College, 1886; aged 72; for forty-five years a practitioner; died at his home, July 29.

John Newton Moorman, Cross Plains, Texas; University of Nashville, Tenn., 1860; aged 82; died at his home, April 30, from senile debility.

Daniel Graham Carey, Elmira, N. Y.; Eclectic Medical College of Pennsylvania, Philadelphia, 1870; aged 79; died at his home, August 2.

John W. Moose, Agnes, Texas; College of Physicians and Surgeons, Baltimore, 1880; aged 66; died at his home, May 12, from diabetes.

Martin J. Crockett, Sylvester, Ga.; Eclectic Medical Institute, Cincinnati, 1870; aged 72; died at his home, May 2, from epithelioma.

Eli Edwin Graves ● Penacook, Concord, N. H.; University of Vermont, Burlington, 1868; aged 72; died at his home, August 5.

James F. Lockett, Ochelata, Okla.; Iowa Medical College, Keokuk, about 1859; aged 86; died at his home, June 25, from senile debility.

John L. Buxton, Bell City, Mo.; Eclectic Medical Institute, Cincinnati, 1888; aged 58; died at his home, July 25, from tuberculosis.

Lauren A. Stillman, Chicago; Loyola University, Chicago, 1891; aged 62; died at his home, August 8, from arteriosclerosis.

Samuel C. Moore, Urbana, Ohio; Cincinnati College of Medicine and Surgery, 1870; aged 74; died at his home, July 27.

William H. Sampsell, Ashland, Ohio; Jefferson Medical College, 1876; aged 69; died at his home, July 23, from uremia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CAPELL'S UROLUETIC TEST

U. S. MARINE HOSPITAL, Chicago.

To the Editor:—A member of the consultant staff of this hospital recently referred to us a "Doctor" H. F. Matthews, who was supposed to give demonstrations of a new test for syphilis—"Capell's 'Uroluetic' Test." The test was to be made of the urine of the patient. The above mentioned consultant was under the impression that the said "Doctor" Matthews was a graduate physician.

"Doctor" Matthews came to the hospital according to the appointment made by the consultant, and proceeded to give his demonstration. Several of the junior officers and interns were present to witness it. He was asked questions in an attempt to determine the scientific status of the test which he was demonstrating. His answers were always vague and indefinite and not clothed in scientific words.

We became suspicious of him, and he was asked if he was a graduate physician. He admitted that he was not. He was further asked if he had studied chemistry and bacteriology; he stated that he had in 1888. Inquiry was made as to where; he replied that it was at the University of Illinois. He was further asked if he was familiar with the Wassermann reaction. He stated that he was not.

This man is going around representing himself as a physician who has a new test which he claims is superior to, and more delicate than the Wassermann test; yet he knows nothing whatever of the technic of the Wassermann reaction.

In one case, we gave him the same specimen of urine in four different containers. He read a different degree of reaction for each of them. In other words, in a specimen from the same patient, his four different tests showed, respectively, a +, a ++, a +++ and a ++++ reaction.

It occurred to me that it might be well to inform you of this man's methods, as he told us that he had been to a good many institutions, and I am sure he will soon start a plan to systematically force his pseudoscientific test on credulous physicians everywhere.

J. O. COBB, M.D., Senior Surgeon in Charge.

The Propaganda Department has in its files a business card reading: "Capell's Laboratories, Room 1510 Masonic Temple, Chicago. Dr. H. F. Matthews, Special Representative." Capell's Laboratory has its headquarters in Omaha, and is apparently conducted by Dr. W. L. Capell, who, for many years, seems to have been more or less interested in proprietary medicines. Some years ago he was connected with a concern known as "Acneine Pharmacal Company," which, apparently, was dissolved some time in 1910, and soon thereafter a new company was organized known as the LeRoy Drug Company. In 1917 W. L. Capell was connected with the Capell, Cameron Co., Inc., of Lincoln, Neb., which was selling "Capell's Uroluetic Test," "Capell's Treatment for Syphilis" and other remedies. The "Treatment for Syphilis" was said to be

"Painless, Pleasant, Harmless, Efficacious, and requires usually from 30 to 90 days only to eradicate the disease."

The name of the treatment is "Mercarodin"—earlier it was called "Camit"—and it is now being sold from "Capell's Laboratory," Omaha. In addition, Capell's Laboratory sells Acneine, which apparently is the same product that was sold in 1906 and 1907 under the name of "Sambu-Co" by the Holtman-Stringer Co. of Omaha and later was put out by the Acneine Pharmacal Company of Omaha.

While Capell's Laboratory sells proprietary remedies, it is the "Uroluetic Test" which the concern now seems to be featuring. The claims made for this are:

"This test requires no expert knowledge, is inexpensive, and can be made in a few minutes, and is so plain that it cannot be mistaken."

The idea of being able to determine the absence or presence of syphilis by a simple color test of the urine, is a fascinating one. The present reliable diagnostic tests are, as Capell's Laboratory so plausibly emphasizes, somewhat involved, and call for rather delicate technic. But there are no short-cuts to knowledge.

A physician who ordered Capell's Uroluetic Test some weeks ago received with the bill the letter that follows: It is given not so much for what it says, as for how it says it. It is copied *verbatim et literatim:*

"Your letter received, and we have mailed you as per your letter 1 Doz. of Capell's 'Uroluetic' Tests. In close find statement and instructions, for same.

"The 'Uroluetic' Test is meeting a far greater approval from the Medical profession than we had expected, while we do not claime that it is perfect, yet we have only received one unfavorable report, and we daily feel incuraged in its efficacy.

"You know Doctor that there are two dangerous elements in this world, one is the extreme pessimist and the other is the extreme optimist. The immoral Lincoln said, 'That there was nothing that was wholly good or wholly evil,' and we presume that this is equally true of the 'Uroluetic' test. But we want the truth no matter what it is."

"Capell's Uroluetic Test" would be "important if true." Unfortunately, its scientific value to the sufferer is negligible compared with its economic value to the exploiter. It is not so much a test for lues in the patient as of credulity in the doctor.

Correspondence

"H. M. C." AND DRUG ADDICTION

To the Editor:—The more or less discredited "twilight sleep" has been largely applied in this country through the medium of a proprietary tablet known as "H. M. C." and composed of "hyoscin" (scopolamin) morphin and cactin. The cactin is negligible in the formula, and the product would probably be improved were it omitted from the mixture; but "H. M. C." is a name readily remembered, and the product must be credited with marked activity.

That this proprietary might be habit-inducing did not occur to me until recently, when I noticed from our drug reports how frequently prescriptions for original packages of it appear. A certain degree of tolerance to scopolamin is produced, but it is not generally regarded as habit-inducing. It appears in our work, however, that an addict to heroin will readily come to tolerate quite considerable doses of scopolamin and, indeed, the heroin addicts when deprived of their drug are fairly well content with scopolamin as a substitute. Both drugs depress the respiratory center very markedly and often lead to collapse.

Western Pennsylvania seems to have a great incidence of asthma, and it is here and in this disease that "H. M. C." tablets are coming into vogue, I believe very unwisely.

I have noted eight cases in the city of Erie in which prescriptions of original packages of "H. M. C." have been given—six of the patients being men and two women, and the quantities ranging from twenty-five to 100 tablets. Doubtless some of the smaller prescriptions were written by physicians when in attendance in obstetric cases, a proper number being used and the physician taking the remainder back to his office; but 100 would hardly be prescribed under such circumstances.

I believe this was the disposition of prescriptions noted as written in Corry and also in Washington, though in the latter place one woman had prescribed for her 183 tablets in the course of three months. Scattered reports throughout western Pennsylvania show many persons receiving from fifty to 200 tablets. Most of them are sufferers from asthma of some type.

In a most distressing case of chronic asthma, in the family of a physician in Lawrence County, the patient some weeks requires one tube of "H. M. C.," and the good doctor writes me: "We have sent her to the following cities: Pittsburgh, Cleveland, Elwood, Youngstown and Kane, to the best physicians; and always it was the same old treatment, viz., 'H. M. C.'" This report leads me to believe that the use of these tablets in asthma is rather common.

But the most striking case is reported from Jefferson County. The patient, a male morphin addict, somewhat advanced in years, has taken "H. M. C." for four years, gradually running up the dosage. He also has asthma. In the course of a long letter this man writes: "I have far over one hundred dollars' worth of tubes that Dr. ——— prescribed here now empty, and Lord only knows how many more I threw away."

Some of the cases we encounter tend to show that marked tolerance can be established to scopolamin, especially in a morphin or heroin addict; and, without implying any belief that the makers of the "H. M. C." tablet would promote its improper use, I believe that physicians should be most careful in supplying this potent alkaloidal mixture to their patients.

THOMAS S. BLAIR, M.D., Harrisburg, Pa.
Chief, Bureau of Drug Control, Pennsylvania Department of Health.

RELATIONSHIP OF INFLUENZA BACILLUS TO INFLUENZA

To the Editor:—The relationship of *Bacillus influenzae* to influenza is, at present, a subject of such great importance that I trust you will permit me to draw attention to a statement of Dr. W. H. Park in his article on "Bacteriology of Recent Pandemic of Influenza and Complicating Infections" (THE JOURNAL, Aug. 2, 1919, p. 318). Dr. Park says: "Although Keegan, Opie and their associates believe that the influenza bacilli are the causative agent, they present no real evidence." I have published no dogmatic opinion concerning the relationship of *Bacillus influenzae* to the disease because I have not believed that the data available justified a definite conclusion. The report of the commission of which I was a member (THE JOURNAL, Feb. 22, 1919, p. 556) contains evidence that *Bacillus influenzae* has been found in every instance of influenza which the commission studied by appropriate methods; but the significance of this observation is not discussed in the report. Dr. Park says: "They place the sequence of events as follows: At the time of infection, *B. influenzae* descends into the bronchi; later, pneumococci may invade the inflamed bronchi," etc. This statement doubtless paraphrases the following: "The sequence of events in many cases of influenza is as follows: *B. influenzae* descends into the bronchi; pneumococci invade the inflamed bronchi," etc. There is, here, no reference to the etiology of influenza; the bacteriology of the bronchitis and pneumonia of influenza is under discussion. Dr. Park dismisses with a few words the complex subject of influenza bacillus carriers. With the many defects in present knowledge of the micro-organism and of the disease, an expression of opinion concerning the relation of one to the other would require obvious qualification. It is the purpose of this letter to state that the conclusion which Dr. Park finds so assailable is inferred from the report by himself and is not mine.

E. L. OPIE, M.D., St. Louis.

IS GONORRHEA INCURABLE?

To the Editor:—The doctrine that gonorrhea in the male is incurable seems, for certain reasons, to be gaining ground among physicians and laymen alike. As one of those who dissent from this belief—which, if erroneous, is fraught with harm—I desire to emphasize the distinction between *incurable* and *uncured*.

To physicians of the last generation gonorrhea was a "urethritis" only; invasions of extra-urethral structures were "complications." So long as pus issued from the meatus it was assumed to be produced in the urethra; and this innocent canal was tortured with caustics, dilators, knives and urethroscopes without avail. Today we know that the disease is usually urethrovesiculitis, the infection invading vesicles and ampullae in from three to twenty days after the discharge appears; and that from these extra-urethral cavities pus may drain into the urethra and out of the meatus for two or twenty years in spite of any or all treatment of the urethra; for this merely mops up the floor, the urethra, without turning off the faucets, the vesicles.

These numerous cases are uncured but not necessarily incurable; for there is now ample evidence from many sources that a single filling of the vesicles with collargol solution (by vasotomy) has promptly cured many of them. Failure to cure some by one injection has led to the evolution of vasotomy into vas-puncture, analogous to puncture of a vein, whereby the vesicle can be repeatedly filled without the drawbacks of an operation. The possibilities of such treatment were illustrated by a man in the third week of severe gonorrhea whose vesicles were filled with collargol solution in St. Luke's Hospital, in April, 1914. He was apparently well on the fifth day thereafter, submitted seminal fluid found to be free from gonococci on the ninth day, and married his nurse on the fifteenth day after operation, without subsequent evidence of gonorrhea in either person.

The ancient belief in the incurability of gonorrhea, based on the obsolete idea that the disease is urethritis only, seemingly needs revision by the modern demonstration that acute gonorrhea is commonly urethrovesiculitis, requiring early treatment of vesicles as well as of urethra.

WILLIAM T. BELFIELD, M.D., Chicago.

DEATH FROM RHUBARB LEAVES DUE TO OXALIC ACID POISONING

To the Editor:—I enclose herewith a case history reported by Dr. Harry J. Robb of Broadview, Mont. I should be interested in having your opinion on Dr. Robb's diagnosis of this case.

JOHN J. SIPPY, M.D., State Epidemiologist, Helena, Mont.

On the morning of May 6, Mrs. A. made breakfast, but at the time did not feel well. She then went to bed where she remained. She began to have cramplike pains in the abdomen during the forenoon. These pains continued intermittently all day until 12:30 a. m., May 7.

I was called to see her, and arrived at her home, 20 miles away, at 1:30 a. m., May 7. At that time she was very weak and pale, and so drowsy that it was difficult for her to answer any questions intelligently.

Her temperature was normal. The respirations were 36 a minute. The radial pulse could not be felt. The heart beat was 120 a minute. The extremities were cold. She could keep nothing in her stomach, and vomited a brown, bloody fluid. I found the complete products of conception of about six weeks' development, discharged into the bed. The placenta was bloodless, and a small amount of blood discharged with it did not coagulate after several hours.

Heat to the body and stimulants gave no improvement, and her condition continued to become worse until her death, a few hours later.

After death there was considerable bleeding from the nose. This blood failed to coagulate.

I learned from Mr. A. that she had not taken any drugs except a couple of acetylsalicylic acid tablets, which she took that day for her pain.

May 5, Mrs. A. prepared some rhubarb for supper. The leaves were fried for greens and the stalks were boiled. She ate most of the leaves herself and seemed to relish them. Mr. A. took a spoonful of the leaves, but preferred the stalks.

Mr. A. said he felt weak and sometimes dizzy, May 6. Mrs. A. had been in good health previous to this illness.

The leaves and root of the rhubarb plant have a content of oxalic acid in the form of oxalates, the dried roots containing as high as 40 per cent. What the content in the leaves is, I do not know.

The marked exhaustion, the vomiting of bloody material, early cardiac failure, the early termination of illness in death, and especially the absence of coagulation of the blood in the case of a person who had been perfectly well apparently, thirty hours previous to death, led to my conclusion that death was due to poisoning from the oxalic acid contained in the leaves of the rhubarb eaten.

I shall gladly answer any additional questions you may wish to ask, and would appreciate very much to hear your decision in the case.

H. F. ROBB, M.D.

COMMENT.—It seems probable that the case reported by Dr. Robb is one of oxalic acid poisoning as a result of ingesting a relatively large amount of rhubarb leaves. Both the leaves and stalks of rhubarb contain salts of oxalic acid, but the amount is greater in the leaves. A number of deaths from the use of the leaves have been reported; as far back as seventy-five years ago its toxic effects were noted. During the war the use of the leaves as a food substitute was encouraged in England; when the danger of fatal poisoning became apparent (owing to several deaths), warnings were issued against the use of the leaves. The small quantities of oxalates which occur in the stalks are seemingly ineffective in the quantities ordinarily eaten. Oxalic acid and the oxalates produce local irritation and corrosion; "in addition they produce violent stimulation and later paralysis by

depriving the tissues of their calcium through precipitation" (Sollmann, Pharmacology, 1917, p. 691). The symptoms are usually those of collapse, possibly preceded by convulsions. The nephritis produced by oxalic acid was discussed editorially in THE JOURNAL, June 16, 1917, p. 1820. The chemical antidote would be the administration of calcium.—ED.]

The following references may be consulted:

Oxalic Acid in Foods, editorial, THE JOURNAL, Nov. 17, 1917, p. 1699.
Poisoning from Rhubarb Leaves, THE JOURNAL, June 30, 1917, p. 1954.
Death from Eating Rhubarb Leaves, London Letter, THE JOURNAL, June 23, 1917, p. 1978.
Maillart: Poisoning from Rhubarb Leaves, *Rev. Méd. de la Suisse Rom.*, June, 1917.
Poisoning by Rhubarb Leaves, *Lancet*, **1**:847, 1917.
Rhubarb Poisoning by Leaves, *Pharm. J.* **98**:413, 1917.
M. L. J.: Severe Poisoning Apparently Due to Eating Rhubarb, *Lancet* **1**:1110, 1915.
Fry, H. J. B.: The Decalcifying Action of Oxalic Acid Illustrated by Three Cases of Poisoning, *Lancet* **2**:220, 1913.
Brown, O. H., and Scott, W. G.: Oxalic Acid Poisoning, THE JOURNAL, April 27, 1912, p. 1280.

CONTROL OF BITES OF LEPTUS AUTUMNALIS, OR MOWER'S MITE

To the Editor.—Having had some experience with *Leptus autumnalis*, harvest bug, or mower's mite, last fall, I thought some one might be able to profit by a treatment for this most disagreeable insect's bite which I accidentally discovered. The mite was very prevalent in our neighborhood, and was found for some time in the hay. Men working about the barns, feeding stock, were badly bitten. The insect burrows under the skin and makes an extremely itchy area surrounding the point of entrance. Having tried all the remedies spoken of in available books, to no relief, I used kerosene to remove some very greasy ointment which had been applied with no results. Immediate relief followed the application of the kerosene. Later, I found that if a person washed the parts affected with a cloth wet in kerosene as soon as the first itching was noticed, or before the mite had penetrated the flesh deeply, the mite was killed and no further trouble resulted. Men handling the hay at chore times found it a good plan to change the clothing immediately afterward and wash the body quickly with the kerosene. This prevented the mite's burrowing. For a time these mites were so bothersome that they would incapacitate a man. The extreme itching would render sleep impossible, and the resulting scratching would not improve the condition.

NINA ALLEN GIRD, M.D., Bonsall, Calif.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE USES OF YEAST

To the Editor:—Is there available information concerning the medicinal use of yeast? How is it taken? I should like to know whether the use of it would cause any digestive disturbance, and whether the flesh gained is normal and permanent. S. E. L., Bridgeport, Conn.

ANSWER.—Yeast is one of those remedies that have undergone alternating cycles of use and of disuse; just at present it appears again to be in its ascendency. No doubt, the reason for these cycles has been excessive praise and uncritical use, followed by disappointment and consequent discard.

Hawk and his associates (Hawk, P. B.; Knowles, F. C.; Rehfuss, M. E., and Clarke, J. A.: The Use of Bakers' Yeast in Diseases of the Skin and of the Gastro-Intestinal Tract, THE JOURNAL, Oct. 13, 1917, p. 1243) have recently called renewed attention to its laxative qualities. When from one-half to one cake of yeast was given three times daily before meals, it produced regular bowel movements in a number of patients suffering from constipation. That this result is not due to any vital processes in the yeast is shown by the fact that yeast killed by boiling water was employed with success. It is suggested that such yeast might be preferred for patients troubled with flatulence. Aside from the tendency of living yeast to produce diarrhea, and the possibility that it may aggravate flatulence, no digestive disturbance has been charged against it. Aaron, in his "Diseases of the Digestive Organs," speaks favorably of its use in atonic constipation.

The much debated question whether yeast may serve as a food can be answered in the affirmative in view of such work as that of the Germans on "Nährhefe"—yeast food (Schottelius, *Deutsch. med. Wchnschr.*, July 8, 1915, p. 817) and Boruttau (*ibid.*, July 29, 1915, p. 924) and of Hawk and his associates. There is no reason to assume that weight gained under its use would be more readily lost than weight gained from any other food. However, in view of its laxative action, the average individual can ingest only from 1 to 2 gm. of nitrogen a day in this form. This obviously greatly limits its value as a food. Owing to its high nuclein content, it is contraindicated in gout.

As a source of water soluble growth promoting as well as antineuritic vitamin, yeast has become thoroughly established as the result of the recent works of numerous investigators. However, as such common foods as milk, rice, wheat, oats and beans also contain such vitamin, there is little likelihood of its proving of therapeutic value on that account. In other words, yeast and other vitamin containing foods have specific growth promoting qualities only when the stunting is due to lack of vitamin. A minute amount of this substance suffices to produce maximal results. More is of no use. Hess (*Proc. Soc. Exper. Biol. & Med.* **13**:145, 1916) found yeast of no value in infantile scurvy.

The most important question in connection with yeast therapy is to what extent it is endowed with "antibiotic" power, that is, to what degree it is capable of inhibiting the growth of other organisms. That this frequently occurs in cultures in vitro is shown by the fact that yeast contamination may practically eradicate the growth of certain other organisms. That, on the other hand, this is not true for all forms of bacterial life is shown by the fact that there is definite symbiosis between yeast and lactic acid bacilli (Northrup: *Soc. Tech. Bull.* 15, Mich. Agr. Exp. Sta., 1912).

That its "antiseptic power is, on the whole insignificant" has been shown by Palier (*Diet. & Hyg. Gaz.*, March, 1906), who found commercial yeasts commonly contaminated with numerous bacteria, the most frequent being *Bacillus coli-communis* or one of its congeners. An antagonistic action by yeast is claimed against *Staphylococcus pyogenes*, and on the strength of this, Buchholtz (Ueber Acne und eine neue erfolgreiche Behandlung derselben, *Berl. klin. Wchnschr.*, Feb. 2, 1914, p. 215) employed it locally in the treatment of acne and obtained a positive but temporary effect. He believes that the effect is improved by the combination of yeast with an equal quantity of boric acid. He employed this as a dusting powder applied freely to the skin once daily, after the application of a thin layer of a boric acid salve (boric acid powder from 40 to 50, glycerin and water, of each 100) to make it stick better. In cases in which the nose was markedly involved, he also used this as a snuff. Yeast poultices have been employed with asserted great benefit in the treatment of wound infection of all kinds (Kempf, E. J.: *Ind. M. J.*, September, 1904, p. 97).

The use in leukorrhea was recommended by Hippocrates Abraham (*Mon. Geb. Sym.*, 1910) and many others report favorable results from yeast in the treatment of gonorrheal vaginitis. In various gastro-intestinal infections, yeast has been lauded by many, among others, Thiercelin and Chevrey. It has been given by mouth, but most especially in high rectal enemas.

Still more from a theoretical standpoint is the reassertion of the curative value of the oral administration of yeast in various cutaneous disorders. Thus Hawk and his collaborators report cure or improvement in all of seventeen cases of acne vulgaris and eight cases of acne rosacea. They also report seventeen cases of furunculosis, in all but one of which there was cure or improvement from yeast treatment. They are unable to decide whether the result is due to the laxative action, the production of leukocytosis, or to other influences.

Yeast is probably best taken incorporated in food. Hawk and his associates found that yeast may well be incorporated in wheat biscuits, and that in this way a yeast-wheat combination of most agreeable flavor was produced: that, in fact, the biscuits with the yeast tasted better than those without it. They found by tests that in bread making as much as 20 per cent. of the flour might be replaced by dry yeast, and that thereby a loaf would be produced that was excellent in

every way and possessed of an attractive flavor. The dry yeast was prepared by desiccating compressed yeast at 105 C. in a current of air, and then milling it to produce a flour of the approximate fineness of ordinary wheat flour. They also found that yeast may be added to meat preparations, such as Hamburger steak, to the extent of 2.5 per cent., yielding a preparation of very satisfactory taste.

REMOVAL OF FRECKLES

To the Editor:—Is there any successful method of removing freckles? A patient of mine has some very large ones, quite unsightly. How about salicylic acid which is used in corn remedies?

HUBERT H. JOHNSON, M.D., Detroit.

ANSWER.—There is no sure cure for freckles. In time they usually disappear. But sometimes it is possible to eradicate them. Authorities differ as to the best method. Some favor diluted solutions of acids; others, alkalis. Many formulas have been suggested which are exceedingly dangerous; in fact, the death of one young woman who used a mixture recommended in a newspaper has been recorded. Among other things, mercuric chlorid; peroxid creams, horseradish, buttermilk and zinc salts have been suggesed. Sutton suggests as "the most efficient remedy for the temporary removal of the eruption" a mixture of mercuric chlorid, 1 part; alcohol, 25 parts, and water 74 parts. The affected areas are rendered free from oil by the use, twice daily, of benzin and the mercury lotion dabbed on by means of a small swab every five or six hours. As a result, a mild exfoliative dermatitis occurs and the lesions peel off. Care should be taken to avoid an acute dermatitis. If excessive irritation occurs calamine lotion or cold cream may be applied. Pusey suggests a lotion containing mercuric chlorid, 1 grain; zinc sulphate, 5 grains; tincture of benzoin, alcohol and water, each, 3 drams. He also suggests that the lesions may be treated more vigorously by the application of a paste containing from 5 to 20 per cent. of salicylic acid, alone or combined with an equal quantity of resorcin. This, of course, sets up an active inflammation and should not be trusted to a patient to use alone, but should be permitted only under the care of a physician. It may be stated that the prompt recurrence of freckles cannot be prevented ordinarily except by careful avoidence of exposure to light. This is usually too great a price to pay for relief.

SNAKE VENOMS

To the Editor:—May I ask where I can obtain information on snake venoms, especially of the "poisonous" snakes of North America? I know there has been considerable work done in Brazil along this line.

W. T. P., Kingston, N. C.

ANSWER.—The following references may be consulted:

Aievoli, E.: Immunization Against Snake Venoms, *Riforma Med.* **34**: 674 (Aug. 24) 1918.

Kubota, S.: Experimental Study of Venom of Manchurian Scorpion, *J. Pharmacol. & Exper. Therap.* **11**: 379 (June) 1918.

McCulloch, C. C., Jr.: Snake Poisoning, or Ophidismus, *New York M. J.* **107**: 1 (Jan. 5) 1918.

Gaggette, A. S.: Treatment of Snake Bites, *Penn. M. J.* **20**: 838 (Sept.) 1917.

Coughlan, J.: Some Insects and Reptiles on the Mexican Border, THE JOURNAL, May 26, 1917, p. 1549.

Welker, W. H., and Marshall, J.: Antitoxin Action of Rattlesnake Serum on Rattlesnake Venom with Percentage of Total Solids of Serum and Bile, *J. Pharmacol. & Exper. Therap.* **6**: 563 (July) 1915.

Fox, J. C.: Treatment of Bites by Venomous Snakes, *Brit. M. J.* **1**: 632 (April 10) 1915; Abstr. THE JOURNAL, May 8, 1915, p. 1616. Facts About Rattlesnake Venom, Current Comment, THE JOURNAL, June 26, 1915, p. 2144.

Acton, H. W., and Knowles, R.: Treatment of Snake Bite, *Indian J. M. Res.* July, 1914.

Bannerman, W. B.: Treatment of Snake Bite with Potassium Permanganate, *Indian J. M. Res.* July, 1914.

Kyes, P.: Venom Hemolysis, *J. Infect. Dis.* **3**: 181, 1910.

Willson, P.: Snake Poisoning in the United States, *Arch. Int. Med.* **1**: 516 (June) 1908.

ELIMINATION OF ANTS

To the Editor:—In THE JOURNAL, August 2, I noticed that Dr. Brandon, Essex, Mo., objects to the prolonged visiting of numerous ants that have been camping on him until forebearance loses its virtue. The best thing I have found in a solution of tartar emetic, sweetened. Watch for the first vanguard, put out the delectable food, and then you can be at peace.

GEORGE F. BEASLEY, M.D., Lafayette, Ind.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

ALASKA: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.
COLORADO: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
HAWAII: Honolulu, Sept. 8-10. Sec., Dr. J. R. Judd, Honolulu, Hawaii.
IDAHO: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.
ILLINOIS: Chicago, Sept. 22-25. Sec., Mr. Francis W. Shepardson, Capitol Bldg., Springfield.
IOWA: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.
MASSACHUSETTS: Boston, Sept. 9-11. Sec., Dr. Walter P. Bowers, State House, Boston, Mass.
MINNESOTA: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.
MISSOURI: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.
MONTANA: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
NEW HAMPSHIRE: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.
NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.
OKLAHOMA: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Westherford.
RHODE ISLAND: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.
UTAH: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

UNIVERSITY OF PERU SCHOOL OF MEDICINE, LIMA, PERU

The complete course prescribed for medical education in Peru consists of ten years of elementary and secondary education followed by two years in the natural sciences and seven years in the study of medicine. According to the plan of the medical course, descriptive, pathologic and topographic anatomy are studied through all of the first four years, clinical surgery in the first and second, and clinical medicine in the third, fourth and fifth years. The second year includes analytic chemistry and pharmacology, followed in the third and fourth by human physiology, bacteriology and symptomatology. Nosology is given in the fourth and fifth years. In addition to the courses already named, the fifth year includes therapeutics, materia medica, clinical therapeutics, clinical otorhinolaryngology and urology. The sixth year is given to obstetrics, public health and international hygiene, ophthalmology, dermatology, syphilography, tropical diseases and clinical surgery. During the last year the student devotes his time to legal medicine and toxicology, pediatrics, nervous and mental diseases and practical exercises in legal medicine, toxicology, gynecology and clinical medicine. Practical exercises in the laboratories and botanic gardens are required especially in the first four years. Licenses are secured by passing a series of five examinations covering all of the work done in the seven years. The examinations are said to be quite severe, and the rules are very strict concerning absences from classes and practical exercises in the clinics, wards and laboratories. The total fees for examination are approximately $500. All candidates must present a certificate of vaccination. Graduates of medical schools outside of South America are required to pass an examination in the Spanish language. By special agreement, graduates of medical schools in South America are privileged to practice medicine in any part of South America without special permission being required. Inquiries should be directed to the dean of the Faculty of Medicine, University of Lima, Peru.

MEDICAL EDUCATION AND PRACTICE IN CHINA

Under the influence of several American and other missionary boards and by the aid of such prominent American medical schools as Harvard, Yale and the University of Pennsylvania, and with the generous financial assistance of the China Medical Board, which was organized by the Rockefeller Foundation, there has been great medical progress in China in recent years, and there are twenty-six medical schools in China. Five of these at present are members

of the Association of Medical Colleges of China. Membership in this association is limited to colleges, which provide a four year medical course, and which require for admission two or more years of college work, including courses with laboratory work in physics, chemistry and biology.

Two practically new medical schools, including premedical departments, are being erected at Peking and Shanghai by the China Medical Board of the Rockefeller Foundation. These are the Peking Union Medical College and the Shanghai Medical School. The plan is to make these equal to any other medical schools in the world in buildings and equipments, as well as in hospital facilities and in educational standards.

The Rockefeller Foundation is also aiding financially other medical schools in China, particularly the Shantung University School of Medicine at Tsinan, The Hunan-Yale College of Medicine at Changsha, and the medical schools at Nankin, Canton, Soochow and elsewhere.

A strong appeal is still being made for medical missionaries. In China, with an estimated population of more than 4,000,000 people, including Manchuria and Mongolia, there are said to be at present only 2,000 scientifically trained physicians. It is stated that at the end of 1917 there were 351 foreign medical missionaries who had working with them 212 foreign physicians. During that year these physicians cared for about 120,000 hospital inpatients. Although large, these figures do not begin to touch the great needs of medical service in that country.

All civilized nations, indeed, are interested in helping to provide better medical service in China for the sake of their own people, if not for the sake of the Chinese, because China is at present the source of many of the epidemics which are liable to sweep over the entire world. It is for the medical practice of the entire world to combat disease wherever it is found by checking it at its very source.

If any physician would prefer to have a large practice regardless of the financial income involved, he would have no difficulty in securing it in China, where there is indeed great need of skilled medical service.

THE IDAHO ADMINISTRATION CONSOLIDATION LAW

By the administration consolidation law, taking effect March 31, 1919, Idaho abolished a large number of administrative boards, bureaus and other separate governmental agencies, merging them into nine departments of the state government, namely, Agriculture; Commerce and Industry; Finance; Immigration; Labor and Statistics; Law Enforcement; Public Investments; Public Welfare; Public Works, and Reclamation. Each department is headed by a commissioner, who, together with the necessary assistants in each department, is appointed by the governor. Each commissioner receives a salary of $3,600 a year and is required to give bond in a sum of not less than $5,000, except the commissioner of commerce and industry, whose bond is fixed at $50,000.

All of the officers are removable at the discretion of the governor except some who, by provisions of the constitution, are appointed for a specified term. Each department maintains a central office in the state capitol, and such branch offices as are considered necessary by the governor. Each department adopts an official seal and prescribes rules for the performance of its business and the conduct of its employees. The act requires each commissioner to make a full report to the governor at the end of each year, and provides for cooperation between the departments. The Idaho administration consolidation law is similar in many respects to the Illinois civil code of 1917. The department which corresponds to the Department of Registration and Education in Illinois is that of Law Enforcement. Some of its duties are to administer the laws regulating the practice of medicine, dentistry, pharmacy, nursing, embalming, veterinary medicine, osteopathy and optometry. It also has charge of the registration of accountants, architects and surveyors, and the enforcement of the laws regarding hunting and fishing and the registration of motor vehicles.

Wherever the several laws regulating professions, trades and occupations so require, the Department of Law Enforcement is given the following powers:

To conduct examinations to ascertain the qualifications and fitness of applicants to exercise the profession, trade or occupation for which an examination is held; to pass on the qualifications of applicants for reciprocal licenses, certificates and authorities.

To prescribe rules and regulations defining, for the respective professions, trades and occupations, what shall constitute a school, college or university, or department of a university, or other institution, reputable and in good standing, and to determine their reputability and good standing, by reference to a compliance with such rules and regulations.

To establish a standard of preliminary education deemed requisite for admission to a school, college or university, and to require satisfactory proof of the enforcement of such standard by schools, colleges and universities.

To conduct hearings on proceedings to refuse licenses to persons in the respective professions, trades or occupations, and to revoke or refuse to renew such licenses.

To formulate rules and regulations when required in administrating any of the professions, trades or occupations.

None of the above enumerated functions and duties shall be exercised by the department except on the action and report in writing of persons designated from time to time for that purpose by the commissioner of law enforcement.

For the medical practitioners, six reputable physicians who are graduates of reputable medical colleges and who are licensed to practice medicine and surgery in Idaho, a majority of whom shall not be representative of any one school of medicine and among whom three schools of medicine shall be represented.

The action or report in writing of a majority of the persons designated for any given trade, occupation or profession shall be sufficient authority on which the commissioner of law enforcement may act.

In making the designation of persons to act for the several professions, trades and occupations, the commissioner shall give due consideration to recommendations by members of the respective professions, trades and occupations and by organizations therein.

Whenever the commissioner is satisfied that substantial justice has not been done either in an examination or in the revocation of or refusal to renew a license, certificate or authority, he may order reexamination or rehearings by the same or other examiners.

MEDICAL EDUCATION AND LICENSURE IN COLOMBIA

The A.B. degree is a prerequisite to the study of medicine in Colombia, this degree being granted at the end of the Colombian secondary school course. The medical course covers six years of study, the first two years of which are devoted to practically the same studies as a regular two year premedical course commonly given in liberal arts colleges in the United States, except that anatomy is begun in the second year. In addition to anatomy in the third and fourth years, the student gets general and clinical pathology and surgery on the cadaver. This is followed by a year in practice of medicine, internal pathology, dermatology and ophthalmology. The last two years are given to the study in clinics of external pathology, obstetrics, gynecology, urology, hygiene, legal medicine and psychiatrics. Along with the examination at the end of the fourth year the student takes a review examination on the first year's work, and likewise at the end of each succeeding year he is examined on the work both of the year just closed and also on that of the work done three years before.

The M.D. degree with license to practice is obtained by taking a clinical examination and submitting a thesis on some medical theme of public importance. Any foreign candidate for license is required to present his diploma, with photograph attached, certified by a Colombian consul or diplomatic officer in the country in which the diploma was issued. He will then pass an examination which will include clinics in a hospital.

Book Notices

LICE AND THEIR MENACE TO MAN. By Lieut. LL. Lloyd, R.A.M.C. (T.), Chief Entomologist in Northern Rhodesia. With a Chapter on Trench Fever, by Major W. Byam, R.A.M.C. Cloth. Price, $2.75. Pp. 136, with illustrations. New York: Oxford University Press, 1919.

Recent war experiences have served to add to our knowledge of the rôle played by the insects in the transmission of disease. As a result of the Spanish-American War, we discovered that yellow fever was transmitted exclusively by mosquitos and that flies might under certain conditions be one of the chief agencies in the spread of typhoid fever. During the present war attention was focused on the menace of lice and an opportunity was offered to clarify and increase our knowledge. The author of this little book has aimed at presenting in a concise and readable manner the data accumulated in regard to various kinds of lice, their etiologic relations to various diseases and the methods found most successful for their extermination. In his avowed task of writing "for the general reader rather than for the specialist" he has succeeded quite well, and his book can be recommended to those wishing brief and yet accurate and practical information in this importaht public health subject. Unfortunately the manuscript seems to have been prepared too soon to include, in the chapter on trench fever, the thorough and brilliant study by the Trench Fever Commission of the Medical Research Committee, American Red Cross.

MORTALITY STATISTICS OF INSURED WAGE-EARNERS AND THEIR FAMILIES. Experience of the Metropolitan Life Insurance Company Industrial Department, 1911 to 1916, in the United States and Canada. By Louis I. Dublin, Ph.D., Statistician, with the Collaboration of Edwin W. Kopf, Assistant Statistician, and George H. Van Buren, Supervisor, Statistical Bureau. Cloth. Pp. 397. New York: Metropolitan Life Insurance Company, 1919.

This publication covers 635,449 deaths of persons more than 1 year old occurring in the experience of the Metropolitan Life Insurance Company from 1911 to 1916. Of these deaths, 82 per cent. were of white persons and 18 per cent. of colored. The data should be of special interest in that they cover a geographic range more extensive than that of the death registration area of the United States. The tables include number and percentage of deaths, by causes, with corresponding rates, and mortality from all causes of death combined and from the principal specific causes, by color, sex and age.

Compiled with great care and covering the mortality experience of this large insurance company in practically all parts of the United States, this publication, showing the downward trend of mortality of insured wage earners from 1911 to 1916, is filled with analyses which are sure to prove valuable to public health workers.

Interesting comparisons are made between the death rates of the United States registration area for deaths and the death rates of the Metropolitan Life Insurance Company. Such comparisons by sex (age and color have been made easy for the reader by the free use of percentage tables. For the most part the death rates of the general population of the registration area do not differ greatly from the death rates of the insured policy holders; but when marked differences do exist, the writers have carefully analyzed the figures and given plausible explanations. For instance, a comparison of the mortality of wage earners and of the general population shows no marked difference in the rates below 25 years. "Beginning with the age group 25 to 34 years and thereafter there is, however, a marked excess in the rate of mortality among insured male wage earners over that among males in the general population. At these age periods, the special stresses of adult life and of employment in arduous labor make themselves felt in the mortality experience of males in an industrial life insurance company." Further analyses show that this increased mortality among male wage earners was largely due to tuberculosis of the lungs, organic diseases of the heart, pneumonia and Bright's disease.

A special chapter is devoted to tuberculosis, detailed figures being given for the various forms of this disease. Higher rates from tuberculosis of the lungs in age periods below 20 years appear for females, but for all later age periods the rates for males exceed those for females. Of particular interest are the extremely high rates of colored persons, which in several instances are several times the rates of white persons of corresponding ages. For boys from 10 to 14 the rate for the colored (110.4) is eleven times as high as that (9.8) for white persons.

Other special chapters appear for organic diseases of the heart, pneumonia, Bright's disease, external causes of death (accident, suicide and homicide), cancer, cerebral hemorrhage and apoplexy, four principal diseases of childhood (measles, scarlet fever, whooping cough and diphtheria), diarrhea and enteritis, and diseases and conditions incidental to the maternal state, while other causes of death are treated more briefly in other chapters.

The report has a supplement showing mortality statistics of insured wage earners for the year 1917, and, finally, a brief chapter deals with standardized or corrected death rates.

The mass of data presented in this work is an important addition to American vital statistics, and the authors are certainly to be congratulated.

THIRTIETH ANNUAL REPORT OF THE NEW YORK STATE HOSPITAL COMMISSION, 1918. Cloth. 1919.

This report constitutes a well classified collection of data pertaining to all phases of the care of nervous and mental patients in institutions. Statistical tables arranged according to psychoses and reports of scientific research, prevention work, reeducation and after-care make the report valuable not only to those engaged in similar work but also to all students of social and social-medical problems. The cost of personal services and maintenance and operation of the thirteen state hospitals in New York State for the year ending June 30, 1918, was $9,480,808.17. The total number of inmates, June 30, 1917, was 36,138. There was adequate space for only 28,997 patients. A chart of the percentage of increase in the cost of living indicates that from 1914 to 1918 the cost of food went up 83 per cent. and the cost of fuel and light 63 per cent. The per capita cost of maintenance for the same period increased 27 per cent.

WHAT WE KNOW ABOUT CANCER. A Handbook for the Medical Profession. Prepared by a Committee of the American Society for the Control of Cancer and Published Jointly by the American Society for the Control of Cancer and the Council on Health and Public Instruction of the American Medical Association. Paper. Pp. 54. Chicago: American Medical Association, 1918.

This pamphlet has been issued under the auspices of the American Society for the Control of Cancer and the Council on Health and Publication of the American Medical Association. It presents a condensed summary of the best modern knowledge and practice in the early diagnosis and treatment of the principal forms of cancer, and of conditions which may precede its development. Those desiring a brief, up-to-date summary of this important subject will find that the pamphlet fills the purpose quite satisfactorily.

THE REDEMPTION OF THE DISABLED: A STUDY OF PROGRAMMES OF REHABILITATION FOR THE DISABLED OF WAR AND OF INDUSTRY. By Garrard Harris, Research Division, Federal Board for Vocational Education. With an Introductory Chapter by Frank Billings, Colonel, Medical Corps, United States Army; Chief of the Division of Physical Reconstruction, Office of the Surgeon-General, and a Foreword by Charles A. Prosser, Director of the Federal Board for Vocational Education. Boards. Price, $2 net. Pp. 318, with illustrations. New York: D. Appleton & Co., 1919.

June 27, 1918, the vocational rehabilitation act became a law. It provides that every person discharged from the Army or Navy and entitled to compensation under the war risk insurance act who is in the opinion of the federal board for vocational education unable to carry on any gainful occupation, to resume his former occupation or, having entered such occupation, is unable to continue it successfully" shall be furnished such a course in vocational rehabilitation as the board may provide. Mr. Harris, the head of the research division of the federal board of vocational education, tells in this book most interestingly what were the needs that led up to the passage of the law, what were the experiences of

our allies in reconstructing the human war wreckage, and what is being done to carry out the provisions of the law in the country. Especially interesting is the chapter on the pension system hitherto followed by our government, and the contrast between indiscriminate pension and economic rehabilitation. In the introduction, Col. Frank Billings, chief of the Division of Physical Reconstruction, Surgeon-General's Office, U. S. Army, tells of the organization and work of this division and the steps that have been taken for reconstruction in the Army. The book is copiously illustrated and is an exhaustive discussion of a timely subject.

Medicolegal

Duty to Provide Prompt Emergency Treatment

(*Fontanella v. New York Cent. R. Co. (N. Y.), 174 N. Y. Supp. 537*)

The Supreme Court of New York, Appellate Division, First Department, expresses a willingness to affirm a judgment in favor of the plaintiff, provided he is willing to reduce the verdict in his favor from $20,000 to $12,000, in this action that was brought, not for the original injury, but for the injury alleged to have arisen from the neglect of the defendant to provide prompt emergency treatment, by reason whereof the plaintiff's leg was necessarily amputated. The court says that while the plaintiff, a foreman for the defendant, was at work at a manhole, the cover of the manhole fell on him and broke his leg. That was between 9:30 and 9:45, or very near that time, in the morning. He was taken to an emergency hospital which the defendant had established, reaching it just after 10 o'clock. The physician whose duty it was to be there at that time had not arrived, having been delayed by the failure of his motor car. The assistant station master, who seemed to have charge, telephoned for him and found that he was not in his office, then tried to get another of the company's physicians, and finally telephoned to another hospital for an ambulance to take the man to that hospital, the assistant station master testifying that that message was sent between 10:20 and 10:30 a. m., while the surgeon connected with the other hospital, who came for the plaintiff, swore that the message was not received until after 11 o'clock. The testimony in the case further showed that, immediately on the happening of such an accident, infection sets in; that a wound with this liability to infection requires prompt, if not immediate, emergency treatment, and that the delay of only a few minutes may permit the development of that infection to such an extent as to require the amputation of the limb to save the patient's life. The evidence of the defendant's physician second sought was that he arrived at the hospital at 10:49 and gave to the plaintiff the necessary emergency treatment within a few minutes thereafter; but it seemed that the surgeon of the other hospital was there with the ambulance at nearly the same time, and immediately after the emergency treatment the plaintiff was taken to that hospital. The jury found, on what the court must deem was sufficient evidence, that the delay of approximately an hour at the emergency hospital permitted the infection so to develop that it became necessary, by reason thereof, to amputate the plaintiff's leg. It also found that the defendant had not used reasonable care in providing prompt emergency treatment. For the negligence of the first physician in failing to get to the emergency hospital the trial judge correctly charged that the defendant was not liable. The liability found by the court below was placed on the negligence of the assistant station master in charge of the emergency hospital in failing for an hour to send for an ambulance from the other hospital. A corporation must always act through its agents, and public policy would seem to require that in the providing of prompt service, when prompt service may be vital to the welfare of the patients, as well as in the providing of competent surgical and nursing attention, such an institution is under the duty to use reasonable diligence. Such a duty is not one that can be delegated, but is one which rests primarily and always with the institution, and for the negligence of the assistant station master in failing to provide prompt emergency treatment in this case the defendant was properly held responsible.

Provisions Construed as to Physicians Testifying

(*State v. Miller (Wash.), 178 Pac. R. 459*)

The Supreme Court of Washington reverses a judgment of conviction of the defendant of taking indecent liberties with the person of a girl under 18 years of age, on the ground that the trial court erred in permitting a physician to testify, over objection, that he treated the defendant for gonorrhea shortly before the time of the alleged commission of the offense, which testimony was introduced by the prosecution as tending to show that the defendant had communicated that disease to the girl, there being other testimony tending to show that she had become afflicted with it about the time of the alleged commission of the offense. The court says that the state statutes provide that:

> "A regular physician or surgeon shall not, without the consent of his patient, be examined in a civil action as to any information acquired in attending such patient, which was necessary to enable him to prescribe or act for the patient."—Section 1214, Rem. Code.
>
> "The rules of evidence in civil actions, so far as practicable, shall be applied to criminal prosecutions."—Section 2152, Rem. Code.
>
> "Witnesses competent to testify in civil cases shall be competent in criminal prosecutions, but regular physicians or surgeons, clergymen or priests, shall be protected from testifying as to confessions, or information received from any defendant, by virtue of their profession and character. . . ." Section 2147, Rem. Code.

It seems to the court that Sections 1214 and 2147 are intended to protect two different classes of persons, and are in no wise in conflict with each other. The former protects a patient from having his physician disclose on the witness stand any information acquired in attending him as such patient, which was necessary to enable the physician to prescribe for him, while the latter has reference to the protection of the physician only; that is, so far as the patient's rights are concerned, he has the right of election under Sections 1214 and 2152 in both civil and criminal cases, and so far as the physician's rights are concerned, he has the right of election under Section 2147 in criminal cases. It seems to the court highly improbable that the legislature would accord to a patient a higher degree of protection in civil actions than in criminal actions; that is, a higher degree of protection to his right of property than to his right of liberty.

Furthermore, the court thinks that a patient's consent to his physician's testifying cannot be shown solely by the testimony of witnesses concerning the patient's previous admissions or disclosures. No decision has come to the court's attention holding that such is the law. It seems to the court that the consent must be evidenced to the trial court by some word or act of the patient at the time of the trial, so that the trial court can conclusively know, without depending on the veracity of third persons as witnesses, that the patient has waived the privilege accorded to him by the statute.

It was argued that there was nothing in the physician's testimony which disclosed any communication made by the defendant to the physician, or information acquired by the physician, when he prescribed for the defendant and treated him for the disease; and it was true that there was nothing in the testimony of the physician indicating what conversation took place between him and the defendant as his patient; but manifestly there was enough in his testimony to call for the conclusion that he acquired the information as to the defendant's being afflicted with the disease, when the defendant went to him for treatment. Wherefore the court is of the opinion that this record called for the conclusion that the physician acquired the information as to which he testified, when he treated the defendant, that such information was necessary to enable him to treat the defendant, and that the trial court erred to the defendant's prejudice in permitting the physician to testify over the objection of the defendant's counsel.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Tri-State District Medical Society, Rockford, Ill., Sept. 1-4.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN ORTHOPEDIC ASSOCIATION

Thirty-Third Annual Meeting, Atlantic City, N. J., June 14-17, 1919

The President, DR. HERBERT P. H. GALLOWAY, Winnipeg, Canada, in the Chair

Treatment of Ununited Fractures Following War Injuries

DR. FREDERICK C. KIDNER, Detroit: In war fractures, recurrent sepsis was an ever present menace; even as late as eighteen months after healing of a wound, pus pockets were found in the deep tissues. Operative treatment then in delayed union was to be avoided, except as a last resort. When all external mechanical devices to overcome delayed union have been exhausted, there still remain certain true ununited fractures. These must be treated by open surgery. Such means as careful, honest, surgical observation of long standing have shown to be consistently successful should be chosen, with regard for the torn, bruised, septic tissues of the soldier, which will not stand so much surgical insult as the healthy tissues of the civilian. The easiest, simplest operations, done in the easiest, simplest way, are the best. In fractures with little loss of substance, the removal of scar tissue, and the contact of fair sized bleeding bone surfaces, will usually suffice. A catgut or other absorbable loop will steady the ends. Sometimes a simple interlocking joint, made with mallet and chisel, is necessary to secure good contact. With loss of bone substance, the bone transplant is necessary. In large bones with good nutrition, almost any type of transplant is successful. In small bones, or in large ones with much damage, the type of graft is important. When nutrition is poor, too much grooving or insult to the medullary cavity means failure. The operation of Chutro, that is, cleaning one side of the bone fragments and insertion of a wafer of periosteum and superficial cortex removed from the tibia, between the bone and the periosteum, is the method of choice in such cases. Circulation is easily established in such a transplant, and it can survive considerable sepsis. The two-stage operation will save many disappointments in operation on ununited fractures. As the first stage, all scar tissue is removed and the field explored thoroughly. The wound is then closed tightly. If no sepsis appears, one may reopen, and do the bone operation. In cases of sepsis, wide drainage is done.

DISCUSSION

DR. WINNETT ORR, Lincoln, Neb.: Nonunion would no doubt have occurred with much less frequency if treatment had included perfect immobilization and perfect position from the beginning; but, in seeing these fractures at any stage, the first thing was to try and secure immobilization, even after the opportunity might seem to have gone by. In the treatment of fractures following injury the question arises as to whether it is better to attempt to restore extremely traumatized parts in normal position, or to allow the inflammation to subside. Jones was emphatic in insisting on securing return of parts as soon as possible to normal position. If this was not done, patients presented extraordinary difficulties later on. One never could hope for good operative position later. The problem, then, is whether to establish drainage first, or secure normal position, or both together. At Savenay all that was done was to try to maintain position and immobilization and send the patients back to the United States as fully protected as possible. One point was clearly shown: that it was necessary to abandon many of the procedures and apparatus in vogue, and this principle should be carried into civil practice. It is important that a committee be appointed to revise textbooks in regard to methods of splinting. If students can be taught a simple, practical group of methods of splinting that can be applied to all fractures under all circumstances, orthopedists will have accomplished one of the most useful results to be obtained from the war experience.

DR. DEFOREST P. WILLARD, Philadelphia: Nature can do more for the bone than the physician can. Until nature proves she can do nothing more, the physician should stay out. Operative procedures should be avoided until absolutely necessary. The best help is afforded by proper fixation and immobilization. Men have been sent home to wait for operation, on account of sepsis, and have come back later with absolutely solid union. One man who lost 2 inches of bone in the tibia was sent home for six months, and came back with an absolutely solid autogenous graft of his own. It was not known where he got it. Another important point is the preoperative care of these cases. All patients should have the benefit of hydrotherapy, massage, and active and passive exercise. Tendon transplantation can be done early and the bone graft later. In regard to the interval between time of healing of the war wounds and time of operation, some men advocate going in very early. In England they do not operate for a year, but that seems a little too long. Still, it is better to be on the safe side. The best method after a severe infection with streptococcus or gas bacillus is the two-stage operation six months after injury. The Chutro graft with nearly all periosteum, to give blood supply, is the best. The conservative, slow method of operating on fractures is best.

DR. Z. B. ADAMS, Boston: It is most important to give nature a chance. Things can be done to stimulate union of bone. Jones drew attention to the fact that hammering the site of the fracture at intervals of a week would stimulate union by causing local hyperemia. In regard to metal plates, every one is agreed that treatment by metal plates is not the best way to treat delayed union. A standardized method of treatment is best in which the bones are brought into line and held there, and function of the surrounding joints and nutrition of the muscles and soft parts are maintained. Such procedures tend to limit the number of delayed nonunions.

MR. E. W. HEY-GROVES, London, England: Dr. Kidner's general remarks on this question were correct, but there is a difference in the interpretation of results. In fracture, removal of the fragments is often undertaken as a primary step. I am rather skeptical about the osteogenic power of the periosteum. If comminuted fragments are removed immediately, there is no trace found of young bone formation. If fragments are left in position from six to eight weeks, there is formation of external callus or involucrum. Comminuted fragments are full of bone cells which are poured out on the vascular portions of the periosteum. But in case of sepsis, the little bits of bone will never have the chance to do anything at all. It is not enough to introduce raw surface of bone to raw surface and then leave it. It must be tied. It is of the utmost value to put through bolts and screws of bone, ivory, metal or wire. In regard to the employment of plaster of Paris, it is undesirable after operation to put a limb in plaster of Paris and leave it for many months; but sometimes it has to be done, and muscle function has to be restored later. Some absorption or atrophy does take place at the nuts, but that is only a preliminary stage of repair in normal fractures, and repair never begins without osteoporosis, before final osteosclerosis takes place and formation of a tube. Absorption of calcium salts is not necessarily an evil. A well fitted bone may be lifted securely and kept in place by metallic suture or bone nail or screw. In the case of the femur one can take a very fine drill and make eight or ten drill holes in the axis of the bone until every one starts to bleed. In this way one can tap the vascular and cellular resources of the bone, which will help in union. Deformity cannot be prevented by use of a plaster-of-Paris cast. The most one can do is to minimize it. It is well to put on a molded splint which can be laced on, to afford protection, and by this method one is independent of very long plaster-of-Paris immobilization.

Dr. E. W. Ryerson, Chicago: No single method of treatment is effective under all circumstances. If one does not wish to carry out the two-stage operation, one can test the limb by active massage and physiotherapy beforehand; if no reaction follows, and if the scar is losing its redness, one can perform the operation at one sitting. Even if there are symptoms of infection, one cannot keep the soldiers sitting in the hospital a year longer. On the other hand, there is the two-stage operation. It is difficult to persuade the soldier to submit to two operations in rapid succession, but most of them will stand for anything, provided there is hope of success. More light is needed in cases of nonunion of the femur with wide separation of the bones. It may be possible to put in Chutro grafts, which are as good as the intermedullary inlaid grafts.

Dr. Joel Goldthwait, Boston: When the American forces went over there, the only thing many men knew was how to put in metal plates. The surgeons thought they obtained wonderful results. Later the staff was kept busy over here picking out the plates that the enthusiasts had put in. An order then went forth that no plates were to be put in without consultation.

Dr. John Ridlon, Chicago: There are two points to be considered in the question of bone grafts and plating bones: Grafts are put in to fill in a space, and plates to fix the fragments while the bones are in contact. The bone graft for filling in space meets the problem, but there is no necessity of bone grafts for fixing fragments, which can be fixed more readily by metal plates. Metallic fixation of broken bones may leave them in a pus cavity in some instances until union takes place. It is doubtful if bone inlays will unite in the presence of a large quantity of pus. Fractures can be fastened by metal attachments; and even if suppuration occurs, union will take place and the metal can then be removed. One point does not seem to be fully clear, and that is the reason for atrophy in these bones. The metal plate has been credited with all the bone atrophy. The bone atrophy which occurs in delayed union or nonunion is due more to disuse than to any other factor.

Dr. Charles L. Lowman, Los Angeles: I am interested in the use of hammering instead of massage to stimulate growth of bone. There are, however, half a dozen different kinds of massage that can be used, whether light percussion or deep hammering, with treatment of parts distal to the injury.

Dr. Albert H. Freiberg, Cincinnati: Foreign bodies, such as plates, frequently operate as a slow cause of nonunion. Before the war, many of us had the experience of seeing fractures fail to unite until after removal of plates. The relationship of infection to nonunion is not yet perfectly understood. In my work at the Walter Reed Hospital, I found nonunion present in the presence of sequestrums. These bits of bone were left in because they had periosteal fragments and were supposed to act as osteogenic centers. It was necessary only to remove these fragments, and subsequent healing and union took place. It is not advisable to perform a plastic operation too soon. Union can be allowed to take place first.

Dr. John L. Porter, Chicago: I have used a method of attaching a bone graft to these small fragments, without sacrificing bone. The small fragment is split, and a piece taken from the tibia is chiseled and driven into the fragment, this being used as a lever and dropped in, in correct position. Thus one has a bone graft with sharply pointed end, which allows of pulling the small fragment up into position.

Dr. J. Torrence Rugh, Philadelphia: Sepsis has been considered the greatest factor in the present war, and all attention has been focused on that. The individual factor has been lost from sight. Internal secretion has a most profound influence on bone proliferation. Many of these cases of delayed or nonunion can be benefited by treatment with thyroid, or any of those glands which influence metabolism.

Experiences with Astragalectomy

Dr. Pietro Chutro, Buenos Aires, Argentina: The astragalus is so exactly adapted to the mortise that, except in certain fracture by rifle ball, any fracture of this bone gives rise to deformity which makes joint movement difficult. Often, when several joint elements have suffered injury, the cartilage, the bone fragments and the synovial membrane contribute to retention of pus. The liability of infection of neighboring tendon sheaths also indicates that astragalectomy should be instituted from the first, in order to drain the ankle-joint properly. This result, however, is not always accomplished. The immediate infection appears to subside, but after some weeks the foot remains swollen, and the wound bleeds easily and shows much granulation. Movement becomes impossible from pain and mechanical hindrance. The foot tends to remain swollen, the toes immobile and contracted, the sole convex, a tactile hypersensibility persists, and the foot is entirely useless. Under these conditions amputation becomes necessary, which, in the great majority of cases, could have been avoided earlier.

In order to prevent this unpleasant train of results, certain operative technic was undertaken, as follows: The wounds of entrance and exit were cleaned, and incision was then performed in the form of an italic "*s*," commencing above the external malleolus, and descending along the anterior aspect of the malleolus to the line of the ankle joint, becoming then almost transverse as far as the prominence of the tendon of the tibialis anticus, and then becoming again longitudinal and descending 2 or 3 cm. Astragalectomy was then done and the foot fixed in good position. To fix the foot, a bronze wire was passed through the skin and soft parts of the inferior lip of the wound, grazing the posterior-superior border of the cuboid, and then following a recurrent path, traversing the anterior border of the external malleolus and soft parts of the other lip of the wound. The drainage tubes were placed, and the wire was twisted. Enough opening remained to allow of free drainage. If the infection had spread to the sheaths of the postero-internal tendons, débridement was done, extending to the joint. On terminating the operation, the foot was immobilized at right angles by a figure-of-eight bandage, extending from the heads of the metatarsals to the inferior fourth of the leg. Over this bandage was added a second pad of cotton, and then a new bandage, thus obtaining complete immobilization. Dressings were renewed in from fifteen to twenty days. The patient commenced to walk in the fourth or fifth week, without a crutch, leaning on the arm of a comrade, and in a few days he walked alone. Walking could be begun before complete healing of the wound. The results were very satisfactory; the shortening was negligible, and in time the patient could walk without limping.

Discussion

Dr. Clarence L. Starr, Toronto: Extensive tarsal injury makes a poorly functionating foot. Removal of the astragalus provides adequate drainage, and displacing the foot backward gives a better weight-bearing apparatus than any type of amputation. Dr. Chutro is to be congratulated on the work he has done along the lines of the tarsus.

Transference of Fibula as Adjunct to Free Bone Graft in Tibial Deficiency

Dr. Willis C. Campbell, Memphis, Tenn.: I have adopted the plan of transferring the upper extremity of the fibula as an adjunct to the bone graft. All cartilage and fibrous tissue are removed from the head of the fibula, care being taken not to injure the external popliteal or peroneal nerves. Next a cavity is made in the inferior and external aspect for the reception of the denuded head of the fibula. Heavy traction places the head of the fibula within the cavity. As the final step, the inlay graft is done in the usual manner.

Diagnosis and Preoperative Treatment of Peripheral Nerve Injuries

Dr. Murray S. Danforth, Providence, R. I.: These studies were made in the Edinburgh War Hospital, in the service of Sir Harold Stiles. Diagnosis was based on history taking and routine physical examination. Single examinations were never accepted as sufficient to indicate operative measures, except possibly correction of deformities. As a rule, one examiner made all the tests. In this way possible discrepancies were noted between results of voluntary power

tests and electrical responses. In case of discrepancy, the tests were reinstituted, and the reason was ascertained. Only repeated examination could indicate the probability of anatomic loss of continuity, or that recovery would not take place. The general rule, in regard to treatment, was to wait from six weeks to two months after complete wound healing before operating, and during that time to make two or three complete examinations. The preoperative treatment consisted in improving the nutrition of the muscles, correcting any deformities and restoring flexibility of the joints in the affected extremity. If no deformities were present, the muscles were protected from stretching by proper splinting. This is important. Treatment was also given by hot soaks, whirlpool baths, massage and electrical stimulation. Restoration of flexibility of joints, especially the finger joints, was the most difficult part of preoperative treatment. Elastic traction by means of various appliances was successfully carried out. Massage and passive motion were used in association.

(To be continued)

ASSOCIATION OF AMERICAN PHYSICIANS

Thirty-Fourth Annual Meeting, held at Atlantic City, N. J., June 16-18, 1919

The President, DR. A. MCPHEDRAN, Toronto, in the Chair

Imminent Psychology

DR. JOSEPH COLLINS, New York: Medicine, as revealed by the war, has been found lacking more in the field of neurology than in any other field. Physicians were found incompetent to examine, interpret and treat disorders of the nervous system. Neurology has not been taught adequately to medical students in this country. Psychology has been treated by pedagogists with scorn. Alleged psychiatrists have not seen the necessity of being physicians first and psychiatrists second. Eventually admissions to college will be determined by psychologic tests and not by the knowledge the applicant possesses. The choice of a profession will be determined by psychologic examination. In pedagogy, children will be classified into groups by psychologic tests, and promotions will depend on them. Potential psychoneurotics will be recognized before incapacitating symptoms arise. Feeblemindedness will be detected.

Epidemic Encephalitis

DR. LEWELLYS F. BARKER, Baltimore: I have observed ten cases. This is not a new disease. It has been reported in connection with influenza epidemics. It corresponds to Folin's observations and with Strümpell's poliencephalitis of adults. This in an acute or subacute nonpurulent encephalitis or encephalomyelitis. It is different from poliomyelitis and from meningitis.

DISCUSSION

DR. EMANUEL LIBMAN, New York: Dr. Straus and his co-workers found that there is a filtrable virus which is capable of producing in monkeys and rabbits lesions similar to those found in the human brain. The virus can be recovered from the inoculated animals.

DR. JOSEPH COLLINS, New York: I have seen five cases with generalized tic, torticollis and dystonia throughout the entire body.

DR. FRANK BILLINGS, Chicago: The disease existed in the epidemic of influenza of 1889 and 1890. Cases occurred during the convalescence from influenza. The worst ones were characterized by delirium and even comatose conditions, but all the patients I saw recovered.

DR. E. A. FOUSEL, Philadelphia: Dr. Barker did not speak of retention of urine, which is naturally the symptom which calls the attention of the patient to the fact that he is sick.

DR. L. F. BARKER: I have not seen retention of urine, as a primary symptom, although incontinence has been reported as a symptom.

Diagnosis of Late Syphilis of Central Nervous System

DR. CHANNING FROTHINGHAM, Boston: Since the opening of the Peter Bent Brigham Hospital, considerable attention has been paid to the diagnosis and treatment of syphilis of the central nervous system. As a result, lumbar puncture has been performed in practically all cases in which even a suspicion of syphilis of the central nervous system was present. Two hundred and thirty-three cases were studied. The hospital diagnoses were used and the cases grouped as tabes, general paresis, syphilis of the meninges, and cerebrospinal syphilis. In each group, except that of syphilitic meningitis, there was a definite small percentage of cases, between 2 and 5 per cent., in which neither the history nor the physical examination called the attention of the examiner to the central nervous system, even after syphilis was known to be present. These cases would have been missed as cases of syphilis of the central nervous system if lumbar puncture had not been performed. Therefore, since the lumbar puncture is not dangerous, and since it may expose syphilis of the central nervous system in which physical examination has failed to do so, and since a definite diagnosis is desired early in order to institute appropriate treatment, it seems fair to demand a lumbar puncture in all cases of old syphilis before beginning treatment.

DISCUSSION

DR. JOSEPH COLLINS, New York: Lumbar puncture, as a means of diagnosis, is not comparable in any way with the ordinary symptoms. Syphilis of the central nervous system reveals itself in demonstrable ways, first by disturbance of the pupillary light reflexes, which never occurs in any other condition than syphilis of the central nervous system. Early lumbar puncture will not reveal syphilis of the central system as well as careful examination.

DR. M. J. ROSENAU, Boston: The Wassermann is a crude test, and in any series of cases the number of positive results may be dependent on the sensitiveness of the antigen used. Therefore, unless we standardize the Wassermann test, particularly with regard to the sensitiveness of the antigen, the interpretations may be incorrect.

DR. HOMER F. SWIFT, New York: I would like to call attention to the paradoxical Wassermann reaction. If one follows the reaction with the two methods—the ice box antigen and the cholesterin antigen with the warm technic—one will often find cases which will give a positive reaction with one method and a negative reaction with the other. One cannot tell which antigen is going to give a positive reaction in a given case. Results from different laboratories have often given contradictory readings because of this very fact. It is important that both methods be applied.

Findings in Three Thousand Consecutive Medical Cases with Wassermann Examinations

DR. GEORGE DOCK, St. Louis: We had Wassermann tests made in all my medical cases. No attempt was made at clinical analysis while the work was going on. We used three antigens: (1) ordinary, (2) cholesterin and (3) Noguchi. Results varied widely. In the white outpatients, positive Wassermann tests occurred in 52 per cent.; in the colored outpatients, positive Wassermann tests occurred in 48 per cent. In the tuberculosis clinic we got 23.6 per cent. positive reactions. This is in contrast to the assertion of many authorities that all chronic tuberculosis cases show positive Wassermann reactions.

DR. HIDEYO NOGUCHI, New York: I have been able to increase the sharpness of the reaction by using an acetone alcohol soluble antigen.

Chemistry of Blood in Scurvy, Especially Its Calcium Content

DR. ALFRED F. HESS, New York: Various chemical examinations of the blood were made in cases of infantile scurvy. These included the carbon dioxid content, urea, sugar, calcium and other constituents. The blood was found to be normal in all but two particulars. There was a slight increase in its acidity and a mild degree of acidosis. However, the more important finding was a decided decrease in calcium content. As the salt is approximately normal in rickets, this difference emphasizes the essential distinction between the two diseases. In spite of the low calcium content, the children did not show evidences of tetany nor did

they have convulsions, which proves that the body has a considerable factor of safety in regard to its minimum calcium requirement.

Eosinophilic Polymorphonuclear Leukemia

Dr. H. Z. Giffin, Rochester, Minn.: The clinical characteristics noted were: splenomegaly; enlargement of superficial lymph glands, and a white count that revealed eosinophils, 73.6 per cent., and polymorphonuclear leukocytes, 24 per cent. The patient had had edema and ascites in 1911 with enlargement of the superficial lymph glands and eosinophilia. No parasites were found. He improved on medical treatment. He had a splenectomy in 1915, and apparently did well after that operation. He lived until the fall of 1918, when he died of pneumonia and empyema. Eosinophilia was constantly present. At necropsy, eosinophils were found in all hematopoietic organs.

DISCUSSION

Dr. L. F. Barker, Baltimore: We have observed one case with 71 per cent. of eosinophils. I made a lumbar puncture and obtained a fluid with a large number of white cells with typical myelocytes.

Dr. Emanuel Libman, New York: I saw a case in which there was edema and ascites. The fact that in Dr. Griffin's case the spleen was removed and made no difference in the condition is remarkable.

Dr. A. S. Warthin, Ann Arbor, Mich.: Leukemic infiltration of the meninges is found in leukemia and also in chloroma.

Dr. F. W. Peabody, Boston: Italian, aged 40, with a history of progressive weakness, a spleen which reached to the level of the umbilicus, and white count of 50,000 with 2 per cent. eosinophils, lived a long time.

Dr. J. A. Capps, Chicago: I recall a case of splenomegaly. That patient refused operation and lived eleven years. He had a white count varying from 11,000 to 21,000, and a large spleen, was in fair health, and had an eosinophilia that ran from 10 to 18 per cent. and very few myelocytes. The case was called leukemia.

Long Duration of Remission in Pernicious Anemia

Dr. Charles G. Stockton, Buffalo: A case of pernicious anemia beginning in 1899 was of a serious character with gradual improvement, with interruptions, for six years. Following that there was a disappearance of symptoms, excepting the continuance of achylia gastrica. From 1917 until the beginning of 1918, the patient was apparently well, except for the continuance of achylia gastrica. In February, 1918, she had a severe relapse, the blood showing characteristic morphologic changes, although the color index was 0.8. Her condition was grave, and a transfusion of 900 c.c. of blood resulted in temporary improvement. A few weeks later the patient died of lobar pneumonia. The patient had a remission of twelve years. This would seem to discredit the theory that patients sometimes recover from pernicious anemia.

Transfusion of Blood in Pernicious Anemia

Dr. J. M. Anders, Philadelphia: According to my collective investigations, transfusion offers more for this incurable disease as a means of prolonging life than any other form of treatment up to the present day, including splenectomy, which, moreover, causes immediate death in a not inconsiderable percentage of cases. Causal treatment and the routine method of administering arsenic may be combined with transfusion of blood.

DISCUSSION

Dr. Frank Billings, Chicago: One who has watched a great many of these cases must realize that there are grades and types. In 1896 I had a patient who suffered from pernicious anemia; apparently the cause was a sharp attack of influenza. He recovered so well that he worked as a night watchman for ten years. He always had a subnormal red count, and he occasionally showed nucleated cells. He had achylia gastrica during the entire time. He came into the hospital with a relapse; his blood went down to 600,000 reds, and hemoglobin 10 per cent. Another case was that of a woman who apparently recovered without transfusion and who lived thirteen years. There must be more than one toxin in pernicious anemia. In 20 per cent. there are changes in the spinal cord. In treatment, removal of the spleen or transfusion will have effect in some cases but not in others. I believe many of the cases of reported cures after splenectomy were not cases of pernicious anemia at all.

Dr. Julius Friedenwald, Baltimore: I have examined a large number of cases with reference to the gastric secretion, and I can confirm Dr. Stockton's remark that there is absence of gastric secretion. In those cases in which there is absence of gastric secretion one never finds a return of the acid again, even in the remissions.

Dr. R. C. Cabot, Boston: I have seen about 800 cases. Only one patient is still alive. The present wave of enthusiasm for transfusion will fall like the red count in this disease. It is perfectly clear that you can incite a remission by transfusion more reliably than by any other method; but that the patients live any longer seems to be not yet shown; besides transfusion is not without its dangers. I have had one fatal case even after the blood was carefully grouped. The patient died within twenty-four hours after transfusion. Unfortunately, we had no postmortem.

Dr. George Dock, St. Louis: Several years ago I mentioned a patient who had lived for thirteen years. I hear every Christmas from a patient I first saw in 1906; he had neuritis as a result of Dr. Cabot's cure by Fowler's solution, but has been practically well all the time.

Dr. T. B. Futcher, Baltimore: In 1908, I saw a woman with a characteristic picture of pernicious anemia. In 1917, she was readmitted with the first marked relapse. Unlike Dr. Stockton's patient, her blood showed features of pernicious anemia. She is still in a period of relapse.

Dr. Emanuel Libman, New York: Transfusion properly carried out is without risk. If a thrombosis occurs, it is because the blood has agglutinated. You do not influence the achylia or the nervous symptoms by transfusions. I do not believe that transfusion starts a remission unless it is going to occur; but if it is going to occur, transfusion will bring it about more quickly. Though not prolonging life, we do not put the patient into much better shape for the remainder of his life.

Dr. J. M. Anders, Philadelphia: Transfusion is not done during the remission but only when there is a progressive downward tendency. It should be done before the hemoglobin drops too low. In those cases you get good results in a large percentage of cases. I am sure my patient would not have been alive today if he had not been transfused. As to the duration of life, while it may not be true in some cases that life is prolonged, it must be true in others. The only way to know the proper time to do transfusion is by making blood examinations and examine for reticulated cells.

An Antihemolysin for the Hemolysin of Gas Bacillus

Dr. W. W. Ford, Baltimore: One of the first characteristics of this hemolysin of the gas bacillus was its ability to destroy the red blood corpuscles in man. The theory that this destruction of blood was produced by the acid formed by the bacillus is not tenable. The property of the hemolytic splitting up of blood is due to an excretory product from this organism. As a rule, there is no hemoglobinuria in these cases. In pernicious anemia there is no hemoglobinuria, which may point to the fact that the destruction of the blood may be a secondary condition and not a primary one. Inoculation of animals with gas bacillus does produce hemoglobinuria, according to one observer. If destruction of the blood is an important feature of the gas bacillus, the production of a serum might have practical value.

Factors Influencing Recovery and Resolution in Pneumonia, with Special Reference to the Chemistry of the Exudate

Dr. Frederick T. Lord, Boston: The findings suggest an explanation of recovery from pneumonia in the course of which humoral immunity is assisted by local biochemical changes. Acidosis in pneumonia may be due to partial isolation of the pneumonic lung permitting a local increase in H-ion concentration, the excess of acid formed in the exudate

gaining entrance to the circulation. Dissolution of the pneumococcus may proceed at first slowly and later more rapidly as the local acidity increases. When the H-ion concentration reaches the acid death point of the pneumococcus, crisis and recovery follow. The findings also suggest an explanation of resolution in the course of which the fibrinous exudate is locally split to a form in which it may be absorbed readily and harmlessly. With the breaking down of the cellular exudate, an enzyme-digesting protein (fibrin) in weakly alkaline and weakly acid mediums is liberated. As the acidity increases, the action of this enzyme ceases. An enzyme capable of splitting peptone to amino-acid nitrogen, also active during the proteolysis of the fibrin, is still further activated at a H-ion concentration of 6.3 or 5.2. The exudate may then be dissolved, and resolution takes place.

DISCUSSION

DR. EMANUEL LIBMAN, New York: The question of acid production by pneumococci is of great interest. In many infections there is an acid production in the body, the acid coming from the glucose. Rosenow has shown that if pneumococci are grown on the serum of a human being who is not suffering from pneumonia, there will not be acid production. There has been developed a type of pneumococci which produces acid from glycoproteins.

DR. S. S. COHEN, Philadelphia: Was the acid production in the exudate attributed to autolysis or to a biologic action of the pneumococcus?

DR. C. F. HOOVER, Cleveland: I should like to know the method of determining the hydrogen-ion concentration.

DR. FREDERICK T. LORD, Boston: In answer to Dr. Hoover's question, the H-ion concentration of the pneumonic lungs was determined by the colorimetric method after dialysis of the press juice obtained from the lungs. In one case the colorimetric determination was checked by the electrometric method. In answer to Dr. Cohen, I can only speculate as to the source of the acid which leads to an increase in the H-ion concentration of the pneumonic lung. Perhaps the most likely source is the splitting of the small amount of sugar in the blood to lactic acid. There are, however, other possible sources.

(To be continued)

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION

Annual Meeting, held in Atlantic City, N. J., June 14, 1919

The President, DR. HENRY B. CHRISTIAN, Boston, in the Chair

Work of the Medical Clinic

DR. HENRY A. CHRISTIAN, Boston: The present is a critical time, owing to the readjustments that necessarily must follow the disorganizing influences of war. These influences probably will work more against investigation than any other phase of our medical work. Consequently this society must use every effort to maintain the investigative spirit among its members. To accomplish this the organization of medical clinics and the relation of chiefs of clinics to their assistants is important. To bring about the best results it is important to credit to each worker his work as an independent author. I advise against the plan of joint authorship between the chief and his assistant. Freedom in investigation should be allowed to all assistants. The work of the medical clinic is to train clinicians, and consequently the problems of the medical clinic should be derived from patients and remain closely associated with patients. To bring this about it is a desirable policy to have all workers spend time in both the laboratory and the wards. A return of those preparing for clinical work to the laboratories of the fundamental sciences for a period of training is of value both to the fundamental sciences and to the clinic. Further improvement in ways and means are needed. The problem of teaching has not been solved. Suggestions and advice should be critically examined, and accepted only when their value is demonstrated. It is unfortunate that money cannot be obtained to permit of an adequate development of clinical teaching. It is still more unfortunate that some of the sums are available only on the acceptance of fixed methods of organization. Large funds for investigation and teaching in the hands of a few may do harm or do good.

Occurrence of Anhydremia in Certain Clinical Conditions

DRS. W. MCKIM MARRIOTT, St. Louis, and J. F. PERKINS, Dallas, Texas: Some infants suffering from severe diarrhea lapse into a condition simulating an intoxication. The blood of these patients is invariably concentrated. The amount of water lost from the body is sufficient to account for the rapid and great loss of weight. The desiccation explains the temperature rise. The diminished blood volume results in a fall of blood pressure, arteriolar constriction, accumulation of formed blood elements in the capillary circulation, and a greatly diminished volume flow of the blood. Renal secretion is almost at a standstill, and there is a retention of urinary elements in the blood. Acidosis results from this cause and also from the presence of the products of suboxidation accumulating as the result of diminished volume flow of the blood through the tissues. The administration of a sufficient amount of fluid to render the concentration of the blood normal usually results in a return toward normal conditions and a disappearance of the symptoms. In many cases it is impossible to administer sufficient fluid. The occurrence of anhydremia results in a condition which clinically and experimentally resembles very closely "wound shock." The treatment is also similar. Anhydremia results not only from diarrhea but also from any condition in which there is a diminished fluid intake or an excessive fluid loss.

DISCUSSION

DR. LEE, Boston: The condition Dr. Marriott described very closely resembles the syndrome in severe wound hemorrhage and shock. Furthermore, his observations on the blood volume correspond very closely to the observations on blood volume which we have made in soldiers. We were able to bring out one further point which Dr. Marriott did not mention in his paper: We found in general that the prognosis of our cases in soldiers depended on the fact of whether or not we were able to maintain the blood volume. In those cases in which the blood volume persistently returned to a low level despite treatment, the prognosis was bad. We estimated our blood volume by estimating the hemoglobin before and after the injection of a known amount of either saline or gum salt.

DR. OSCAR M. SCHLOSS, New York: In the course of intestinal intoxication in infants, there is a great loss of fluid through the occurrence of watery stools. Very often only small amounts of fluid are ingested by mouth. As a result, the tissues become dehydrated and there is a concentration of the blood and a consequent reduction in the blood volume. I have felt for some time that the dehydration which occurs in these cases is of great importance. Dr. Marriott has shown that the acidosis is due to the concentration of the blood and to the diminished volume flow of blood. I expressed the view that the acidosis was due to anuria, which was the result of diminished blood pressure in the kidney and also the increased osmotic pressure of the blood, due to increased protein content. The prognosis in cases of intestinal intoxication can be gaged to a considerable degree by the ability of the patients to retain water given intravenously, subcutaneously or intraperitoneally. If the injected fluid is retained, as shown by an increase of weight, recovery may occur. If the infant is unable to retain the fluid, he usually succumbs.

DR. R. T. WOODYATT, Chicago: In addition to studying the blood volume or the total water content of the blood, it is also important to study more than one kind of water in the blood. Experiments made in conjunction with Drs. W. D. Sansum and J. O. Balcar lead me to favor an idea, which is not wholly new, that in dealing with the problem of anhydremia it is necessary to recognize two fractions of blood water, namely, free water and bound water, that is, on the one hand, water comparable in a way to pure liquid water at ordinary pressures and temperatures, and, on the other hand,

water associated with proteins, sugar, salts, etc., in the form of hydrates. One of the symptoms of "intoxication" (Finkelstein) in fever. During the course of continued intravenous injections of strongly hypertonic sugar or salt solutions in animals and men, we have seen fever develop with great regularity whenever the subject has lost by diuresis a sufficient weight of water. A loss in water amounting to only 2.5 per cent. of the body weight in normal dogs has often resulted in fever. This disappears if the water balance is restored. In this respect it is like the "inanition fever" of infants which Crandell showed to be due to thirst; also to the fever which Halberstadt described in infants undergoing changes of diet and which Peteri showed could be allayed by water alone; also to the sugar and salt fevers of Finkelstein, which disappear when enough water is given. However, the fevers that we have observed occur during sustained injections of large quantities of hypertonic fluids into the blood stream, that is, under conditions notable for their tendency to produce hydremic plethora, and the fevers may develop even while the flow of urine is still abnormally great. The fever in these cases appears to be due not to a lowered blood volume nor to a diminution of total water in circulation, but rather to a lack of water in the right state to sustain evaporation at the rate necessary to maintain a normal body temperature. The vapor tension of the blood water appears to be lowered, but not its volume. Somewhat similar observations have been made with respect to diuresis, which may apparently cease while the blood volume is high, owing to lack of water in a state which renders it available for urine. Dr. Marriott does not, of course, say that every symptom of "intoxication" is due to diminished blood volume, and I do not so understand him. The foregoing is mentioned simply to emphasize other factors besides diminution of the blood volume which may go hand in hand with general anhydremia and which may be responsible for some of the features of the syndrome "intoxication," rather than the volume changes per se.

Observations on Blood Sugar

Dr. Ralph Pemberton, Philadelphia: In severe cases of arthritis usually there is a greatly lowered sugar tolerance, giving very high curves as compared with the curves for normals. In groups of moderate, mild and convalescent arthritis, respectively, the sugar tolerance, with some exceptions, tends to return to normal, the curves becoming lower and flatter. In soldiers, the subject of advanced arthritis, accompanied by markedly lowered sugar tolerance, the removal of focal infection in the tonsils or teeth, when associated with relief of symptoms, was followed by a coincident and abrupt return to normal of the lowered sugar tolerance. This lowered sugar tolerance returns to normal after convalescence or cure following other lines of therapy, such as a restricted food intake and nonspecific protein injections. In cases of advanced and chronic arthritis, apparently free from demonstrable surgical foci, there may be a greatly lowered sugar tolerance giving very high curves. This suggests that the sugar tolerance may sometimes remain disturbed in long standing cases, even after the removal of apparently causative foci of infection. Patients having demonstrable surgical foci of infection do not necessarily have a lowered sugar tolerance in the absence of systemic effects. A lowered sugar tolerance is apparently specific for no disease: it parallels the course of arthritis suggestively closely; and it may return to normal abruptly after the removal of focal infection. In view of the frequency of focal infection and its effect on sugar tolerance, it is obvious that such factors should be eliminated before ascribing a lowered tolerance to any particular disease. The possible causative rôle of such agents in the production of the lowered tolerance characteristic of certain diseases is also suggested.

Arterial and Venous Oxygen in Pneumonia, and Its Relation to Cyanosis

Dr. William C. Stadie, New York: The blood of twenty-six bronchopneumonia patients, seven lobar pneumonia patients and five normal individuals obtained by puncture of the radial artery was studied with respect to its oxygen content and oxygen capacity by the Van Slyke gasometric method. In the five normal cases the mean value for the arterial oxygen unsaturation, that is the percentage of hemoglobin uncombined with oxygen in the arterial blood, was 5. In the pneumonia cases the arterial oxygen unsaturation ranged from 0 to 68 per cent., and there was found a definite relation between the degree of cyanosis and the amount of arterial oxygen unsaturation. As the cyanosis increased, the arterial oxygen unsaturation increased proportionately. This points to deficient oxygen exchange in the lung. As a rule, patients show beginning cyanosis with an arterial oxygen unsaturation of 10 per cent. Only one patient with an arterial oxygen unsaturation greater than 20 per cent. recovered. In individual cases the disappearance of the cyanosis and the clinical improvement of the patient is accompanied by a fall in arterial oxygen unsaturation, and conversely, cases in which the cyanosis increased showed increasing arterial oxygen unsaturation. In only one case was there a marked diminution of the oxygen capacity. In general, venous oxygen unsaturation closely parallels the arterial oxygen unsaturation.

Activity of Heart, and Its Response to Digitalis in Pneumonia

Dr. T. Stuart Hart, New York: In the recent epidemic of pneumonia, clinical and pathologic evidence showed that in the majority of cases death was due not to heart failure but to a general toxemia in which the heart was not primarily at fault. Digitalis studies made with standardized preparations of the drug, controlled by electrocardiagraphic records, indicated that in those having a normal heart at the beginning of the pneumonia the hearts showed no evidence of modification of the rate as compared with those to whom digitalis was not given. Blood pressures followed an identical course whether digitalis was given or withheld. The response of these hearts to digitalis was the same as in a similar group of hearts without pneumonia. Characteristic changes in the electrocardiagraphic records were obtained. Partial heart block was observed on several occasions. Two cases of mitral disease with auricular fibrillation showed a marked slowing of the heart and improvement in the circulation after the administration of digitalis. Cases with chronic cardiac valvular disease and regular heart action showed no evidence of being benefited by digitalization; in these pneumonia was fatal in the majority of instances.

Discussion

Dr. William C. Stadie, Boston: The relative infrequency of cardiac failure as the cause of death in influenzal bronchopneumonia was borne out by the study of the arterial and venous oxygen content in our series of cases. The oxygen consumption, that is, the difference between the arterial oxygen content and the venous oxygen content, was not found to be increased appreciably above normal values. This would indicate that there is no slowing of the blood flow, and hence no decrease in the volume output of the heart. This was observed even in the fatal cases in which the observations were made shortly before death. In other words, cardiac failure as measured by this means did not occur in these cases.

Dr. Joseph Sailer, Philadelphia: My experience in the camps included a large number of cases of pneumonia. At Camp Wheeler several hundred patients were receiving strict digitalis therapy; of these, four developed symptoms that, in the absence of instruments of precision, it seemed justifiable to regard as heart block. All the patients recovered promptly when the digitalis was discontinued. It is probable that in young, healthy men, auricular fibrillation, as a complication or sequel of pneumonia, is extremely rare. I failed to observe a single case of complete arrhythmia with rapid pulse during my service in the army. Among the older patients seen in civil hospitals I have observed it occasionally, on the whole very rarely. It is, apparently, the only reason for the administration of digitalis.

Renal Glycosuria

Dr. Solomon Strouse, Chicago: The diagnosis of renal glycosuria has been based on, first, glycosuria without hyperglycemia; second, glucose excretion almost entirely indepen-

dent of carbohydrate intake, and third, absence of diabetic symptoms. To these data should be added, I think, a fourth, and that is the absence of the development of subsequent diabetes. A few patients have been observed long enough to show that some, at least, do not develop diabetes; but, as Joslin has pointed out, a late review of all patients with this condition is advisable. Glycosuria without hyperglycemia has in the light of the more recent studies on blood sugar been found to occur in not a few cases of true diabetes mellitus. Early cases of diabetes mellitus—those, for instance, discovered in life insurance examination—not infrequently show an excretion of glucose not entirely dependent on carbohydrate intake; and in such cases the discovery of glycosuria often precedes the onset of typical diabetic symptoms. Although one can note the presence of a condition with all characteristics of renal glycosuria, it is readily seen that the clinical test of time is necessary for the final diagnosis of this condition as a clinical entity. Four patients were studied for from one year to seven years. They fulfilled all the criteria of renal glycosuria. All are in good physical condition; three are entirely free from sugar, and the fourth patient is passing an increased amount of sugar with a normal blood sugar reaction. He, too, is in perfect physical condition and with no symptoms of diabetes mellitus.

DR. LOUIS HAMMAN, Baltimore: It is of interest to point out that the renal threshold for glucose is a variable factor and that patients with renal diabetes often show remarkable changes in their tendency to glycosuria. Several years ago, in the course of some studies on the renal threshold for glucose, I discovered two apparently healthy young adults who put out sugar in the urine, although the blood sugar did not reach 0.14 per cent. One of the two had spontaneous glycosuria after hearty meals rich in starches. From eight to twelve months later, when retested, neither patient had glycosuria, even though the blood sugar rose to 0.16 per cent.

DR. R. T. WOODYATT, Chicago: In connection with these discussions of the significance of the blood sugar percentage in its relationship to glycosuria, there is a point which has been brought up in previous meetings that I believe is worth emphasizing, namely, the necessity of knowing something about the volume of the blood, or, more exactly, the surface of blood exposed to cells. If the blood in the kidneys contains 0.1 per cent. of glucose, we may imagine that glucose molecules are bombarding the capillary walls at the rate of so many per second in accordance with the kinetic theory. We may assume that a certain percentage of the molecules which strike the capillary walls penetrate into them; that is, into the cells forming the capillary wall. We may also assume that the effects which glucose exerts in these cells will be proportional to the number of glucose molecules which enter them in a given period of time. It is apparent that the number which enter a given cell in any given time when the blood sugar percentage is fixed will depend on the extent of the surface which the cell presents to the bombardment of molecules. It follows that if we are to use the percentage of sugar in the blood as an index of the rate at which glucose molecules are entering the cells, we should know that the surface exposed to blood remains constant, or else know how it varies. A study of the arrangement of capillaries in a frog's foot or in the glomerulus of a kidney or other suitable location will show that an increasing blood volume is capable of inflating collapsed capillary loops and distending others, thus developing more surface for itself, and vice versa. It is therefore apparent that the surface of contact between blood and cells is a variable factor. By suitably arranged experiments, one may inject a strong glucose solution into the veins constantly at a rate just sufficient to cause a detectable glycosuria and sustain this threshold injection for hours. In a certain experiment the blood sugar percentage was found at 0.22. A large volume of extra water was then injected by vein without interrupting the glucose injection. The glycosuria continued as before. But the blood sugar percentage fell to 0.15. In this way, also, it has been possible to maintain glycosuria while the blood sugar percentage is held within normal limits. There appears to be no common agreement among different investigators as to the normal blood sugar threshold of the kidneys expressed as a percentage, and I believe with Epstein that in interpreting blood sugar percentages there should be a correction for blood volume, or more exactly for the blood surface at the time of the blood sugar determination.

DR. HERMAN O. MOSENTHAL, New York: I wish to endorse what Dr. Hamman said concerning the variability of the renal threhold in cases of diabetes. In one instance no sugar was excreted in the urine while the blood sugar was at a level of 0.24 per cent., whereas a few days later there was a slight glycosuria, although the glycemia had dropped to 0.18 per cent. Another point worth emphasizing in this connection is that nephritis, although it is generally supposed to raise the renal threhold to glucose, will not necessarily do this. In one case of marked nephritis the kidney was more permeable to glucose than under normal conditions, allowing sugar to escape in the urine constantly while the glucose in the blood was only 0.1 per cent.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

August, 1919, **158**, No. 2

*One Aspect of Syphilis as a Community Problem. H. S. Newcomer, R. Richardson and C. Ashbrook, Philadelphia.—p. 141.
*Cardiovascular Defectives. L. M. Warfield, Milwaukee.—p. 165.
*Case of Peforated Gastric Ulcer, with Abscess Formation; Perforation Through Lung, With Spontaneous Recovery. J. Friedenwald, Baltimore.—p. 179.
*Lumbar Puncture as a Factor in Causation of Meningitis. P. Wegeforth and J. R. Latham, U. S. Army.—p. 183.
Relationship of Streptococcus Hemoliticus to "Influenza" and Pneumonia. M. B. Levin, D. A. Goodman, and F. J. Pancoast, Fort McHenry, Md.—p. 202.
Influenzal Pneumonia Epidemic at Camp Dodge, Iowa, 1918. E. T. Edgerly, Ottumwa, Ia.; F. M. Manson, Worthington, Minn.; W. G. Dwinell, Providence, and J. G. Carr, Chicago.—p. 212.
Laboratory Report on Epidemic Pneumonia. W. G. Dwinell, Providence, R. I.—p. 216.
Clinical Aspects of Pneumonia Following Influenza, Camp Dodge, Iowa, 1918. J. G. Carr, Chicago—p. 232.
Report of Surgical Service, U. S. Army Base Hospital, Camp Dodge, Iowa, On Epidemic of Influenza of 1918. F. M. Manson, Worthington, Minn.—p. 244.

Syphilis as a Community Problem.—As the result of much personal experience Newcomer and his associates found out that it is practicable for any well organized general hospital to establish a clinic for the treatment of syphilis without great expense to the institution and to the certain advantage of the community it serves. The fundamental questions of mortality which underlie the spread of this infection do not properly present themselves for the consideration of the physician and the hospital in connection with such a clinic. The practice of segregating the syphilis clinic from the more general work of the hospital, which has been so general, should be abandoned, as it makes the treatment appear to the patient in the light of punishment and to the hospital staff and management as a disagreeable duty. The interests of all are thus sacrificed to sentiment, and in the confusion the propaganda for better morals is not effectively advanced. Medically speaking the authors' results confirm the prevailing view that once syphilis has invaded the body it is very difficult if not impossible to eradicate the disease. Systematic treatment is, however, capable of minimizing its effects for the individual, and at the same time rendering him almost innocuous to the community. Such a clinic as this is probably more successful in securing treatment in this systematic way than is management by the private practitioner. It being assumed that such clinical facilities as those described have been made available in adequate amount, the attack on syphilis as a community problem should involve as a measure of the first importance systematic effort to secure treatment at the earliest possible moment for those infected.

Cardiovascular Defectives.—It is shown by Warfield that there is a class of young men of usually healthy appearance who nevertheless suffer from a group of symptoms following mild exercise characterized by breathlessness, precordial pain, dizziness, palpitation and exhaustion. There also may be headache, sleeplessness, cold, clammy hands and feet and profuse sweating. These men might never have been discovered except for the army draft, which caused thousands of young men to be examined physically. These men have no complaints, as a rule, which lead them to seek medical advice. They find that they are better able to make a living at light or sedentary work than at hard work, so they drift into the lighter occupations. The majority are surprised when told that there is something really the matter with them, although they have recognized the fact that they cannot take the violent exercise which other men of their acquaintance can take. A certain number are taken to a doctor, who may diagnose heart disease or neurasthenia. There is no common etiologic factor among the true cardiovascular defectives, no cause can be found, except a constitutional inferiority, a poor quality of tissue which must be supposed to account for the syndrome. Among others, certain chronic diseases or the result of severe acute illnesses are responsible for the syndrome. When there is a definite pathologic basis, such as pulmonary tuberculosis or chronic focal infection, etc., cure of the disease causes the effort syndrome to disappear. Cases resulting from infectious disease or based on constitutional inferiority do not improve.

Gastric Ulcer with Abscess Formation.—Friedenwald says that only four cases similar to his are recorded in which perforation from a gastric ulcer was followed by rupture through the lung. The patient recovered.

Lumbar Puncture in Meningitis.—It had been found, clinically, that infections of the meninges occur not infrequently allowing the release of normal spinal fluid by lumbar puncture during a septicemia. Five such instances are cited by Wegeforth and Latham. To prevent the possible accidental production of a meningitis as a result of diagnostic lumbar puncture it is recommended (1) that careful consideration be given the bacteriologic study of the blood before such punctures are attempted; (2) that in acute diseases, in the absence of definite signs of irritation of the central nervous system, lumbar puncture should be avoided unless it is first conclusively shown that the blood stream is free of infection; (3) that when the clinical symptoms are such as to render a lumbar puncture advisable, minimal quantities of fluid should be withdrawn; (4) that small bore needles should be utilized in performing the operation to prevent as much as possible subsequent leakage of spinal fluid into the surrounding tissues.

American Journal of Physiology, Baltimore

July 1, 1919, **49**, No. 2

*Studies in Secondary Traumatic Shock. II. Shock Due to Mechanical Limitation of Blood Flow. J. Erlanger and H. S. Gasser, St. Louis. —p. 151.

*Gastric Response to Foods. III. Response of Human Stomach to Beef and Beef Products. H. R. Fishback, C. A. Smith, O. Bergeim, R. A. Lichtenthaeler, M. E. Rehfuss and P. B. Hawk, Philadelphia. —p. 174.

*Id. IV. Response of Human Stomach to Pork and Pork Products. C. A. Smith, H. R. Fishback, O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 204.

*Id. V. Response of Stomach to Lamb and Lamb Products. H. R. Fishback, C. A. Smith, O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 222.

Electrical Conductivity Method of Determining Relative Volume of Corpuscles and Plasma (or Serum) in Blood. G. N. Stewart, Cleveland.—p. 233.

*Effect of Feeding Pars Tuberalis and Pars Anterior Proprior of Bovine Pituitary Glands on Early Development of White Rat. C. J. Marinus, Detroit.—p. 238.

*Relation of Hypophysis to Glycogenolysis. R. W. Keeton and F. C. Becht, Chicago.—p. 248.

*Gastric Response to Foods. VI. Digestion in Normal Human Stomach of Eggs Prepared in Different Ways. R. J. Miller, H. L. Fowler, O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 254.

Studies on Brain Stem. I. Regulation of Body Temperature in Pigeon and Its Relation to Certain Cerebral Lesions. F. T. Rogers, Chicago.—p. 271.

Physiologic Significance of Reaction of Tissue Cells to Vital Benzidere Dyes. P. G. Shipley, Baltimore.—p. 284.

Studies on Nervous Control of Kidney in Relation to Diuresis and Urinary Secretion. I. Effect of Unilateral Excision of Suprarenal Section of Splanchnic Nerve and Section of Renal Nerves on Secretion of Kidney. E. K. Marshall, Jr., and A. C. Kolls, Baltimore. p. 302.

Id. II. Comparison of Changes Caused by Unilateral Splanchnotomy with Those Caused by Unilateral Compression of Renal Artery. E. K. Marshall and A. C. Kolls, Baltimore.—p. 317.

Id. III. Effect of Nicotin on Secretion of Two Kidneys after Unilateral Section of Splanchnic Nerve. E. K. Marshall, Jr., and A. C. Kolls, Baltimore.—p. 326.

Id. IV. Unilateral Ligation of One Branch of One Renal Artery and Unilateral Splanchnotomy. E. K. Marshall, Jr., and A. C. Kolls, Baltimore.—p. 335.

Id. V. Chlorid and Sulphate Diuresis after Unilateral Splanchnotomy. E. K. Marshall, Jr., and A. C. Kolls, Baltimore.—p. 339.

Shock Due to Mechanical Limitation of Blood Flow.—An examination was made by Erlanger and Gasser of the mechanical changes in the circulation occurring in shock as induced by procedures directly involving the abdominal viscera, that is to say, in the type of shock most commonly investigated. Another method of inducing shock was the so-called mechanical shock of Janeway and Jackson. These investigators studied the effect of temporary partial occlusion of the inferior vena cava. They found that properly graded temporary partial obstruction of the inferior vena cava above the liver or of the aorta beyond the origin of the left subclavian artery eventually results in the development of a condition closely resembling traumatic shock. They are convinced that the failure of the circulation after both manipulations is in part certainly due to the consequence of the sequestration of corpuscles in the capillaries and venules, and that if back pressure in the veins, such as is produced by caval obstruction, is a factor in the development of this state of affairs in the capillaries and veins, it is not an essential one. The fact that the vasomotor mechanism need not be involved (as for example in aortic obstruction) renders it unnecessary to invoke failure of a nervous venopressor mechanism to explain the fulness of the capillaries and venules. It can be explained on the basis either of the change in character of the blood stream, or respiratory and nutritional changes in the vessel walls or, and more probably, of both.

Gastric Response to Beef.—The digestion of various forms of beef and beef products in the normal human stomach was studied by Fishback and his associates by the fractional method. Over seventy complete experiments were made on twenty-five different subjects. It was found that all normal stomachs do not respond alike to the entrance of the same food. Some respond very promptly and decidedly to the entrance of food, whereas others respond very slowly and indifferently to the same food. Also, one type of normal stomach empties very quickly, whereas a second type evacuates slowly under like dietary conditions. Roast beef appeared to be handled by the stomach with about the same ease whether rare, medium or well done, although the rare beef had, perhaps, a slight advantage in this respect. Beef steaks appeared to be just as readily digested if cooked rare as when medium or well done. Very tough steaks from the cheaper and tougher cuts of meats, such as rump and shank, showed distinctly more rapid evacuation than sirloin or the best tenderloin steaks. Roast beef was found to lie between these two classes of steaks in gastric response and evacuation time. Hamburger steaks were found to leave the stomach in about the same time as an equal weight of roast beef under the same conditions. Stewed beef was handled by the stomach in practically the same time as roast beef, but with a less rapid development of acidity. The response to boiled corned beef was similar to that of roast beef or stewed beef. Dried beef was digested with almost the same ease as ordinary roast beef. Beef bologna was handled by the stomach in the same length of time as roast beef. Calves' liver required a slightly longer time. Beef tongue was less readily digested than dried beef. Frankfurters left the stomach rather quickly, as did also sweetbreads. Tripe was digested a little less rapidly than roast beef. For 100 gm. of the beef products tested an average evacuation time of two hours and thirty-five minutes was obtained on subjects of the rapid emptying type and three hours and twenty-five minutes on subjects of the slow emptying type.

Gastric Response to Pork.—For individuals with stomachs of the rapid empting type a general average evacuation time for pork products of two and three-quarters hours was found. Subjects of the slow emptying type showed a general average of three hours and forty minutes. Pork products in general were comparatively slow to leave the stomach as would be expected from their high fat content. Roast pork was retained appreciably longer than roast beef in most instances. Pork chops required about the same period of gastric digestion as roast pork. Fried ham also required considerably longer to digest than roast beef. Minced ham showed a slight advantage over boiled ham as to evacuation time. Liver and bacon required about the same period of digestion as roast beef. Pork sausage was somewhat more easily handled than were pork chops but less readily than roast beef. Ham bologna required about the same time to digest as fried ham or as the less readily digestible beef steaks. The evacuation of bacon was found to be slow and low gastric acidities were developed. Ham sandwiches were more readily handled than most other pork products tested. "Scrapple" left the stomach more slowly than pork sausage and belongs to the less readily evacuated pork products. Pigs' feet gave variable results but appear ordinarily to be handled more easily than pork chops.

Gastric Response to Lamb.—Lamb was found to require from two to three hours (average two and one-half hours) for individuals possessing the rapid emptying type of stomach to digest and from three to four hours (average three hours and twenty minutes) for individuals with the slow emptying type of stomach. Roast lamb and lamb chops required practically the same period of gastric digestion and stewed lamb a little longer than the other two. Sheep brains left the stomach rather rapidly (two and one-half hours). On the average, roast lamb remained in the stomach a few minutes longer than roast beef, but not as long as roast pork.

Effect of Pituitary Feeding on Growth.—One hundred young rats were separated into three groups by Marinus. The first group was fed on pars anterior proprior of the pituitary gland, the second on pars tuberalis, and the third or control group on beef muscle. During twelve weeks of feeding the rats of the first group exhibited increased growth rate accompanied by a more rapid development of the reproductive system, evidenced by gross and microscopic hypertrophy of the organs and by the earlier birth of young. In the second (pars tuberalis fed) group there was no change in the sexual development as compared with that of the control group. The growth rate was slightly slower in the second group, owing, perhaps, to the smaller amount of meat fed. This study has not shown that any of the functions ascribed to the anterior lobe as a whole are due to the pars tuberalis.

Relation of Hypophysis to Glycogenolysis.—The results of the experiments made by Keeton and Becht favor the view that the physiologic rôle played by the hypophysis in carbohydrate metabolism does not deal with transformation of glycogen into sugar but more probably with the utilization of the sugar by the organism.

Gastric Response to Eggs.—Experiments to determine the response of the normal human stomach to eggs prepared in various ways, showed that eggs give rise to less stimulation of gastric secretion than meats and leave the stomach sooner. Raw egg white left the stomach much more rapidly than any other form of egg preparation. Raw egg yolk required much longer to leave the stomach than egg white. Hard boiled eggs required on the average a few minutes longer for gastric digestion than soft boiled eggs. Scrambled eggs required a little longer to leave the stomach than boiled eggs. Fried eggs were handled as readily as soft boiled eggs or any other type of cooked egg. Eggs scrambled or fried with a large excess of fat remained in the stomach a little longer, the difference being most marked with the rapid emptying type of individual. The belief that fried or moderately greasy foods give the stomach appreciably more trouble than others was not supported by these findings. Omelets remained in the stomach as long as scrambled eggs and longer than boiled eggs. Poached eggs, shirred eggs and soft cooked eggs were found to be among the more readily digested forms of eggs. Eggs pickled in vinegar were digested in the same time as the hard boiled eggs from which they were prepared. Deviled eggs remain in the stomach a little longer than plain boiled eggs. Eggs with milk, or egg nog, leave the stomach a little more slowly than eggs alone, the egg albumin preventing the formation of indigestible curds in the stomach such as are likely to be formed with milk alone. Eggs with bread or French toast remained in the stomach a little longer than bread and butter alone but not longer than hard boiled eggs. Bacon and eggs were taken care of by the stomach almost as readily as fried eggs alone while possessing distinctly higher food value. Frizzled beef with scrambled eggs was digested as quickly as scrambled eggs alone. Eggs and meat appear, therefore, to form a desirable combination from the standpoint of gastric digestion.

American Journal of Public Health, Concord, N. H.

August, 1919, 9, No. 8

Constitutional Foundations of Federal Public Health Functions. F. J. Goodnow, Baltimore.—p. 561.
Dangerous Tendency in Public Health Administration. W. S. Rankin, Raleigh, N. C.—p. 567.
Presence of Fecal and Nonfecal Types of Colon Bacillus in Various Types of Water. W. R. Stokes, Baltimore.—p. 571.
Meats; Present Aspect of Supply, Conservation and Development. W. H. Lipman, Chicago.—p. 575.
Conduct of Central and Local Government Authorities in England. A. Newsholme, London, England.—p. 581.
Future Cooperation Between American Red Cross and Public Health Agencies. L. Farrand, Washington, D. C.—p. 583.
Proper Relation of Federal and State Governments in Public Health Work. A. J. McLaughlin, Washington, D. C.—p. 586.
Present Status of Pneumococcus Vaccine. R. L. Cecil, Washington, D. C.—p. 589.
Use of Anaerobic Culture Methods in Study of Influenza. J. F. Norton, Chicago.—p. 593.
*Nature of Toxic Agent in "Meat Poisoning." I. Greenwald, New York.—p. 595.
*University Health Service. W. E. Forsythe, Ann Arbor, Mich.—p. 598.
Interpretation of Bacteriologic Findings. P. Castleman, and K. R. Bailey, Boston.—p. 602.

Nature of Toxic Agent in "Meat Poisoning."—The experiments reported by Greenwald were performed with a view to obtaining some information as to the nature of the substances responsible for the symptoms of "meat poisoning." The results were negative but it is believed that they help to indicate the direction which future investigation should take. The stage of decomposition of meat appears to have comparatively little to do with toxicity. Badly decomposed meat (venison, game birds) is eaten, by preference, by large numbers of people. On the other hand, meat of perfectly fresh appearance, taste and odor, but infected with a virulent strain of bacteria, may cause serious illness and death. The relatively simple substances known as ptomains cannot be regarded as responsible for the symptoms observed. They are not nearly sufficiently toxic, particularly when given by mouth. Their existence, in any but very badly decomposed meat, is open to question. Moreover, they may be produced by the very means taken for their isolation. In these experiments no attempt was made to investigate the possible occurrence of heat stable toxins. Under ordinary conditions, it would be quite impossible to separate their effects from those produced by the ingested bacteria. "Meat poisoning" is produced by the ingestion of food that has not, as a rule, been exposed to prolonged bacterial action. Also, the filterable toxin of cholera vibrios, which will produce severe gastro-enteritis when injected intraperitoneally, is harmless when given by mouth. What is true of cholera vibrios may also be true of other organisms. The rapid development of the symptoms of "meat poisoning" indicates very clearly that they are not entirely due to the action of micro-organisms within the gastro-intestinal tract. There seems to be a heat labile toxin which produces the acute immediate effects. The bacteria may or may not grow and add a further intoxication. The particular organism may be what Van Ermengen calls a "pathogenic saprophyte" such as *B. botulinus*. This organism produces a highly potent toxin but the bacilli themselves are harmless because they are incapable of growing at body temperature. With other organisms, other factors may play

a similar rôle. Greenwald suggests that further investigation is required and should take the direction of an investigation of possible heat labile toxins.

University Health Service.—The personnel of the health service established by the University of Michigan five years ago consists of five men and one woman, full time physicians, two dispensary nurses, a pharmacist, and a stenographer. The physicians were selected to do general rather than specialized work, and were given faculty standing in the department of administration, with graded rank and salaries such as existed in established lines of public health work. The financial support of the work came entirely from a general student annual fee of $6 collected by the university at registration. A necessary part of the attention to sick students is hospitalization as part of their privileges in the health service. Such patients are sent to the hospitals operated by the medical departments of the university, where they may receive free necessary attention for a limit of sixty days. The medical service in the hospitals is given by their regular staffs and is under cooperative supervision of the health service physicians. Physicians of the health service attend students when called to their rooms. For such calls the university collects from the students $1 for a call in daytime and $2 for a night call, and places the money to the credit of the health service. Absolute freedom is given students in the selection of a staff physician regardless of sex. Arrangement exists by which private hospitals may be used in addition to those of the university.

American Journal of Roentgenology, New York City

July, 1919, 6, No. 7

Camp Greenleaf School of Roentgenology. W. F. Manges, Philadelphia.—p. 305.
Mobile Roentgen Ray Apparatus. A. C. Christie, Washington, D. C.—p. 358.

Annals of Surgery, Philadelphia

July, 1919, 70, No. 1

*Cranioplasty: Value of Graft of Bone, Cartilage or Fascia in Closure of Cranial Defects Caused By Wounds in War. A. Primrose, Toronto.—p. 1.
Clamp for Osteoplastic Craniotomy. E. Sachs, St. Louis.—p. 21.
*Results of Splenectomy in Anemia. W. J. Mayo, Rochester, Minn.—p. 22.
Treatment of Gunshot Wounds of Chest. E. Eliot, Jr., New York.—p. 30.
*Delayed or Late Extraction of Intrathoracic Projectiles by Method of Petit de la Villéon. R. G. Le Conte, Philadelphia.—p. 37.
*Thoracic Fistula and Chronic Empyema. H. Lilienthal, New York.—p. 43.
Empyema. J. S. Rodman, Philadelphia.—p. 49.
*Treatment of Empyema. J. A. Hartwell, New York.—p. 55.
*Foreign Bodies in Stomach. Report of Cases. R. Winslow, Baltimore.—p. 60.
Inguinal Hernia. F. Toreck, New York.—p. 65.
Transplantation of Rectus Muscle or. Its Sheath for Cure of Inguinal Hernia when Conjoined Tendon is Obliterated. Transplantation of Sartorius Muscle for Cure of Recurrent Hernia when Poupart's Ligament has Been Destroyed. J. C. Bloodgood, Baltimore.—p. 81.
*Strangulated and Irreducible Hernia. E. H. Risley, Boston.—p. 89.
Roentgen-Ray Examination of Abdominal Organs Following Oxygen Inflation of Peritoneal Cavity. A. Stein and W. H. Stewart, New York.—p. 95.
New Instruments for Procuring and Preparing Autogenous Bone Bolts and Keys and Special Methods of their Application in Shaft Fractures. W. L. Bell, Oakland.—p. 101.
Use of Autogenous Bone Grafts, Secured and Applied after Method of Bell. M. L. Emerson, Oakland, Calif.—p. 105.
Treatment of Acute Gastromesenteric Ileus. A. P. Condon, Omaha.—p. 107.
No-Flap or Guillotine Amputation; an Unfortunate Resurrection. J. H. Gibbon, Philadelphia.—p. 111.

Cranioplasty.—Forty-two cranioplasties were performed by Primrose on thirty-eight patients. Nearly all the patients suffered from headache. As a rule, the headache was relieved completely by a successful cranioplasty. The relief of dizziness by operation was more pronounced than that of headache. In cases of deafness, noises in the ear, defective vision and aphasia, there were no observations to suggest that the operative procedure had any effect on the condition. As for hemiplegia, which was present in fifteen cases in varying degree, the condition showed progressive improvement, in every instance usually leaving a residual weakness, but in exceptional cases clearing up entirely. It cannot be said that the closure of the defect had any remedial effect on paralysis in these cases. The value of the operation in more complicated cases, more particularly those suffering from jacksonian epilepsy, is less evident. Primrose is convinced that the value of the fascial graft is well worth considering. Where there is a cortical irritation, with much scar tissue implicating the dura mater, it is most serviceable to make a free dissection of the cicatricial tissue, removing the patch of dura mater involved and substituting a patch of fascia lata to close the rent. Where a gap exists in the cranium it should be closed. The symptoms caused by the existence of the gap and directly dependent on it will almost certainly be relieved by a successful cranioplasty.

Results of Splenectomy in Anemias.—The triumph of splenectomy, according to Mayo, is the cure of hemolytic icterus. Only patients in a terminal condition, with secondary gallstones and cirrhosis of the liver, fail to be relieved. The only patient the Mayos lost of twenty-seven splenectomized for hemolytic icterus was one operated on during an acute exacerbation.

Late Extraction of Intrathoracic Projectiles.—October, 1918, Petit de la Villeon reported about 330 and Robin ninety-two extractions of foreign bodies from the chest. There were four deaths in these combined series, a mortality of less than 1 per cent. One death was apparently due to the anesthetic, and one occurred from sepsis in a patient who had previously had an open operation on the opposite lung, and the necropsy disclosed a putrid gauze pack in the pleura. Le Conte points out that the indications for operation are: intrathoracic projectiles should be removed when the patient complains of pleurodynia, shortness of breath on slight exertion, cough or dyspnea, more or less frequent hemoptysis, and when there are signs of congestion in the lung surrounding the projectile, with slight elevation of temperature. When no symptoms referable to the projectile exist, the question of its removal should be considered with reference to the possibility of its causing future trouble. Also, fragments of projectiles should always be removed from a military patient, where their presence prevents him from reentering Class A. When the projectile lies in the mediastinum or hilum of the lung, its size and the degree of tolerance must be balanced carefully with the danger of its removal. In the average case the intervention is so simple, the extraction so easy, the recovery so prompt, and the risk so small, that due weight must be given to these things when the subject of operation is under discussion.

Thoracic Fistula and Chronic Empyema.—Patients with cavities and discharging sinuses persisting for more than two months after drainage for empyema and unsterilizable by the Carrel-Dakin method, Lilienthal says, should be examined with the vertical fluoroscope. Those with large rigid cavities and profuse discharge are proper subjects for his operation, which may be described as a major noncollapsing thoracoplasty. Small cavities, when resisting other treatment, are also suitable for this form of thoracic surgery. In fact, the procedure described by the author should, he says, be selected in the cases in which it has been heretofore customary to perform major chest collapsing operations or the Delorme-Fowler decortication.

Treatment of Empyema.—In Hartwell's opinion no form of treatment for empyema which disregards the thorough drainage of the chest cavity by a rib resection, and the gradual reexpansion of the lung by respiratory effort, meets the requirements. Other means will cure only a certain number of cases, particularly in such times as the disease occurs in abortive forms, which it has done during the past two years.

Foreign Bodies in Stomach.—One of Winslow's patients had swallowed 1,059 small steel pins and 129 hair pins, forty-nine safety pins, thirty-six pieces of wire, buttons, etc., 1,290 different pieces in all. They were removed at operation.

Strangulated and Irreducible Hernia.—The point emphasized by Risley in the report of a case is the possibility, when extensive adhesions make wide dissection of a hernia inadvisable, of placing an adherent cord and testicle within the

abdominal cavity, together with its adherent hernial sac (or bladder), doing a radical cure of the hernia and expecting a favorable, symptomless outcome.

Boston Medical and Surgical Journal

August 7, 1919, **181**, No. 6

Chest During Influenza Epidemic. P. H. Cook, Worcester, Mass. —p. 158.
*Formication: A New Sign of Nerve Regeneration. I. H. Coriat, Boston. —p. 163.
Diagnosis and Treatment of Syphilis. L. J. Cummins, Boston.—p. 166.

Formication: A New Sign of Nerve Regeneration.—Coriat regards the formication sign of Tinel as being a valuable test for the detection of nerve regeneration. The test is very easily applied, but should be done carefully in each case, as the tingling produced by neuroma formation may lead to error. In neuroma formation or in the early stages of regeneration without neuroma formation, the formication is limited to the level of the lesion. In the neuroma formation also, where the regenerating axis cylinders are blocked and may consequently lose themselves in the surrounding tissues, the formication remains fixed at the level of the lesion. In actual regeneration of the nerve the formication progresses over the zone of the growth of the axis cylinders and can finally be detected along the partial or entire cutaneous distribution of the nerve. For a time it may involve the entire cutaneous distribution, but as regeneration becomes complete, it finally can be detected only in the extreme periphery. This formication probably is due to an increased sensitiveness of the young axis cylinders. It is best, however, not to rely on the formication sign alone. The test should be correlated carefully with the other investigations of the nerve lesion, such as protopathic and epicritic sensibility, regenerating pain points, and electrical reactions.

Florida Medical Association Journal, St. Augustine and Jacksonville

July, 1919, **6**, No. 1

Influenza. J. M. Perret, Pensacola, Fla.—p. 1.
Organizing for Community Health. O. H. Cox, Pensacola, Fla.—p. 8.

Journal of Bacteriology, Baltimore

July, 1919, **4**, No. 4

Thermophilic Bacteria. D. H. Bergey, Philadelphia.—p. 301.
Metabolism of Actinomycetes II. S. A. Waksman, Newark, N. J. —p. 307.
Systematic Study of Proteus Group of Bacteria. J. J. Wenner and L. F. Rettger, New Haven, Conn.—p. 331.
Bacteriology of Dysentery in Norway. T. Thjötta. Norway.—p. 355.
Diphtheria Bacillus in Culture. J. W. M. Bunker, Detroit.—p. 379.
Growth of Certain Bacteria in Mediums of Different Hydrogen Ion Concentrations. B. Cohen and W. M. Clark, Washington, D. C. —p. 409.

Medical Record, New York

August 9, 1919, **96**, No. 6

Treatment of Influenza and Its Pulmonary Complications. J. M. Anders, Philadelphia.—p. 223.
Practical Application of Facts of Narcotic Drug Addiction Disease. C. F. J. Laase, New York.—p. 225.
Statistics of Influenza. F. L. Hoffman, Newark, N. J.—p. 229.
Dark Field Illumination Method in Early Diagnosis of Syphilis. R. L. Dourmashkin, New York.—p. 234.
Drug Addiction Causes Acidosis and Responds to Alkaline Therapy. C. A. Rosewater, Newark, N. J.—p. 326.
Trench Nephritis. J. Ryle, London, England.—p. 237.

Michigan State Medical Society Journal, Grand Rapids

August, 1919, **18**, No. 8

Differential Diagnostic Problems in Psychoses Associated with Infectious Diseases. B. L. Jones, Ann Arbor.—p. 427.

Minnesota Medicine, St. Paul

August, 1919, **2**, No. 8

Epidemiologic Investigation of Influenza Epidemic at Camp Dodge, Ia., 1918. M. Seham, Minneapolis.—p. 281.
Indication for Surgical Treatment of Thyroid. G. Earl, St. Paul. —p. 295.
Plant Dermatitis. E. D. Brown, Minneapolis.—p. 3001.
Interrelation Between Orthodontic Malformations and Diseases of Nose and Throat. G. C. Dittman, St. Paul.—p. 305.
Nervous Symptoms in Pernicious Anemia. H. W. Woltmann, Rochester.—p. 306.

New York Medical Journal

Aug. 9, 1919, **110**, No. 6

Tuberculosis Among European Nations At War. J. A. Miller, New York.—p. 221.
Gunshot Injuries of Head. K. W. Ney, New Orleans.—p. 229. To be Cont'd.
Neurology in Everyday Practice. H. Climenko, New York.—p. 234.
*Atropin in Pneumonia. A. Sterlin, Philadelphia.—p. 237.
Arthritis of Knee Joint. Following Fissure Fractures of Tibia. P. Bonnet, Paris.—p. 239.
Iridectomy and Conjunctivoplasty in an Unusual, Old Trauma to the Eye. S. Moskowitz, New York.—p. 242.
Childbirth. P. A. Kane, Chicago.—p. 243.

Atropin in Pneumonia.—In the treatment of influenzal pneumonia Sterling has used belladonna or atropin, administered early, from 1/150 to 1/100 grain of atropin, or 5 to 10 drops of tincture of belladonna, to atropinize or belladonnize the system, with very good results. He has treated all influenza cases with quinin hydrobromid or dihydrobromid, in 5 grains doses, right from the start, giving three capsules night and morning with a glass of hot tea and whisky (one tablespoonful) until the temperature became normal. If the temperature was high, he gave a capsule every three hours throughout the day disregarding the deafness or cinchonism symptoms. To children quinin was administered in suppositories of cocoa butter. The dose was regulated according to age; 5 grains in one suppository, every three hours, or two suppositories night and morning. Digitalis, atropin and cocain were also used from the start.

	gm. or c.c.	
℞ Pulv. digitalis	066	gr. 1
Atropinae sulphatis	00066 or 00099	gr. 1/100-1/150
Cocain hydrochlorid	033 or 017	gr. 1/2-1/4
Strychninae sulphatis	002	gr. 1/30

M. S. One capsule four times a day.

To children digitalis and belladonna were administered in tincture form separately so as to be able to increase or decrease the dose as needed. Alkaline drinks were given from the start.

	gm. or c.c.	
℞ Liq. potass. citratis	180	℥ 6

Sig. One tablespoonful every two hours.

Sterling is convinced that this treatment lowered the mortality among his cases.

New Orleans Medical and Surgical Journal

August, 1919, **72**, No. 2

Intraperitoneal Rupture of Bladder During Puerperium. Report of Cases. W. Kohlmann, New Orleans.—p. 47.
Value of Roentgen-Ray Diagnosis of Bone Syphilis. A. Granger, New Orleans.—p. 53.
Empyema. B. C. Garrett, Shreveport, La.—p. 58.
Venereal Control. H. M. Wilson, U. S. Army.—p. 62
Some Phases of Tropical Medicine in Recent War C. C. Bass, New Orleans.—p. 72.

Ohio State Medical Journal, Columbus

Aug. 1, 1919, **15**, No 8

Genesis of Myopic Eye. S. D. Risley, Philadelphia.—p. 467.
Feeding Clinically One Thousand and Thirty Cases in One Year. H. J. Leslie, Cleveland.—p. 472.
Chronic Infections of Large Bowel Including Sigmoid and Rectum. W. M. Beach, Pittsburgh.—p. 474.
Practical Offices for Surgeon. C. M. Harpster, Toledo.—p. 478.
*Diagnosis and Treatment of Meningitis. W. J. Stone, Toledo.—p. 483.
Neuropsychiatric Problems of Future With Suggestions for Their Prevention. C. W. Sawyer, Marion.—p. 492.
Local Health Administration in Ohio. A. W. Freeman, Columbus. —p. 495.
*Importance of Balanced Diet. E. S. Everhard and G. Felker, Dayton. —p. 498.

Diagnosis and Treatment of Meningitis.—The mortality in 227 instances of epidemic meningitis observed by Stone was 29.0 per cent. The mortality in fourteen instances of meningitis due to mixed infections, such as streptococcus or pneumococcus with meningococcus, was 92.8 per cent. The mortality in eighteen instances of meningitis, due to other organisms than the meningococcus, was 88.8 per cent. During the course of the epidemic 196,000 cultures were taken for carriers. The highest percentage of carriers found was 6 per cent.; the average for the entire series was 2.1 per cent. Five per cent. of the patients with meningitis had been under treatment for the carrier state at an earlier date. The spinal

fluid was cloudy in 90 per cent. of first punctures. The fluid was clear, but organisms were found in less than 1 per cent. of the recovered patients and in 2.6 per cent. of the fatal instances. The average number of intraspinal treatments in the recovered patients was eleven; the average total amount of serum each received was about 300 c.c.; the average total spinal fluid drainage was about 575 c.c. The average period of illness was fifty-two days. Among the fatal instances the average number of days under treatment before death was ten. Among 161 recovered patients, 9.3 per cent. had petechiae while among sixty-six fatal instances, 21.2 per cent. exhibited petechiae. Positive blood cultures were obtained in a larger percentage of patients with petechiae, while negative blood cultures were, as a rule, obtained in those patients not manifesting petechiae. The mortality among forty-eight patients who received combined intravenous and intraspinal therapy was 27.1 per cent.

Balanced Diet.—It is claimed by Everhard and Felker that very few people eat too much, but it is difficult to keep the fats down. Under all other circumstances the fat excess makes trouble. An excess of fat in the diet renders the urine acid to methyl red and results in bodily distress of various types. The authors suggest that high fat percentage keeps the protein and carbohydrates so low as to produce anemia and other disorders of malnutrition.

Public Health Journal, Toronto

August, 1919, **10**, No. 8

Sanitation In War. J. W. S. McCullugh, Ottawa, Can.—p. 345.
Bacteriology of Swelled Canned Sardines. W. Sadler, Vancouver, Can.—p. 355.
Diphtheritic Wound Infections. J. G. Fitzgerald and D. E. Robertson, Toronto, Can.—p. 360.
*Mental Deficiency from Preventive Aspect. M. Young.—p. 363.

Mental Deficiency from Preventive Aspect.—The points on which Young lays special stress are: The importance, from the point of view of mental hygiene, of maternity and child welfare work, and particularly of antenatal work. The education of the physician, the health visitor and school teacher, the social worker, and all others likely to come in contact with very young children in the beginnings of mental deficiency. The special care, from the earliest possible age, of the child with a bad mental tendency. The continuation of an advocacy for the prevention of the perpetuation of the mentally unfit. Increased activity in the segregation of the special cases of mental defect. The establishment of psychiatric clinics. The compulsory notification of cases of mental deficiency.

Social Hygiene, New York

July, 1919, **5**, No. 3

G. H. Q., A. E. F., Bulletin No. 54 On the Venereal Problem. S. Harris, U. S. Army.—p 301
Police and Public Health. R. W. Pullman, Washington, D. C.—p. 311.
Massachusetts Plan against Venereal Disease. A. N. Thomson, U. S. Army.—p. 317.
Social Legislation and Vice Control. J. Mayor, New York.—p. 337.
Prudery and Child. W. M. Gallichan, London, England.—p. 349.
Law Enforcement; A Plan for Organized Action. P. Popenoe, New York.—p. 355.

Southwestern Medicine, El Paso, Texas

July, 1919, **2**, No. 7

Surgery of Appendix. J. H. Morford, El Paso.—p. 1.
Rupture of Mediastinum. R. G. Jones, El Paso.—p. 4.
Observations of an Army Tuberculosis Examiner. D. C. Twichell, Albuquerque, N. M.—p. 6.

Surgery, Gynecology and Obstetrics, Chicago

August, 1919, **29**, No. 2

*Radical Cure of Pelvic Deformity. H. Jellett, Dublin, Ireland.—p. 117.
Factors that Enter Into Surgery of Prostate. J. B. Deaver, Philadelphia.—p. 126.
*Infective (Secondary) Hemorrhages from War Wounds. H. Neuhof and F. B. St. John, New York.—p. 130.
*Transplantation of Bone for Defects of Head and Neck of Femur. C. Davison, Chicago.—p. 142.
*Recurrence of Exophthalmic Goiter after Thyroidectomy. H. G. Sloan, Cleveland.—p. 148.
Vesical Diverticulum. Analysis of Twenty-One Cases. F. Hinman, San Francisco.—p. 150.
Case of Pregnancy and Labor Following Amputation of Cervis Uteri. O. S. Pavlik, Chicago.—p. 172.
*Occurrence of New Growths in Abdominal Wall after Laparotomy. W. C. Danforth, Evanston, Ill.—p. 175.
*Three New Amputations of Foot, Designed to Retain Calcaneal Tread. C. E. Corlette, Sydney, Australia.—p. 177.
Neoinsertion of Round Ligaments; Caballero's Operation. E. Nicholson, Buenos Aires, Argentine.—p. 194.
Technic for Bloodless Hysterectomy. B. Van Hoosen, Chicago.—p. 196.
Two Cases of Elephantiasis of Scrotum. L. N. Bell, Tsingkiampu, China.—p. 199.
Treatment of Sac In Herniorrhaphy. A. M. Miller, Danville, Ill.—p. 201.
Fracture of Neck of Femur in Feeble. W. D. Wise, Baltimore.—p. 201.
Congenital Radioulnar Synostosis. J. W. Sever, Boston.—p. 203.

Radical Cure of Pelvic Deformity.—Jellett is firmly convinced that pubiotomy is a safe operation. It both enables a particular labor to be terminated satisfactorily and it cures certain degrees and types of contracted pelvis. He insists that it should be performed as long before the delivery of the patient as possible. On the other hand, he says, these are three points which are still to be decided: Should pubiotomy be performed independently of pregnancy and labor? Should it be done by the open method? Should any special steps be taken to prevent bony union? In Jellett's opinion it would appear as if the first two questions should be answered in the affirmative and that by so doing complications will be prevented.

Infective Hemorrhages from War Wounds.—Infective hemorrhage occurred in forty-five patients of a total of about 5,000 surgical cases that passed through the hospital in which Neuhof and St. John were stationed in one year. Many of these cases were minor ones, others did not require surgical intervention. Its incidence is, therefore, better appreciated in the statement that sixty-five of a total of 2,332 operations were undertaken for its control (2.79 per cent). The occurrence of infective hemorrhages varied considerably with the different convoyés of wounded but was in general proportionate to the frequency of infection. The authors gained the impression that it became less common with the wider operative exposures that were practiced more and more frequently. Infective hemorrhages occurred most often if more conservative or no operative procedures were employed in the treatment of the wound. Brief histories are given of these cases.

Bone Transplants in Defects of Femur.—Davison cites cases of recent fracture of the neck of the femur without impaction, and cases of ununited fracture of the neck of the femur with diminished vitality of the capital fragment which were repaired by transplanting a segment of fibula across the nonunion, and cases in which the head of the femur, destroyed by injury or disease, was replaced and fair function reestablished by transplantation of the head and upper part of the fibula into the upper end of the shaft of the femur in such a manner that the articular surface of the head of the fibula articulated with the acetabulum.

Recurrence of Exophthalmic Goiter.—A study of the case histories of patients suffering recurrences of exophthalmic goiter has led Sloan to believe that in many instances, if not always, the exciting cause of exophthalmic goiter and of its recurrence will be found to be of an infection, usually focal in character, which must be eradicated before cure is possible.

Occurrence of New Growths in Abdominal Wall After Laparotomy.—Two new growths in laparotomy scars, one a true desmoid and the other a fibrosarcoma, are reported by Danforth.

New Amputations of Foot.—Corlette's paper was also published in the *Medical Journal of Australia*, **1**:479, 502, 526 (June 14, 21 and 28) 1919; **2**:8 (July 5) 1919, and was abstracted in THE JOURNAL, Aug. 16, 1919, p. 560.

Texas State Journal of Medicine, Fort Worth

July, 1919, **15**, No. 3

Health Conservation. J. L. Davis, Waco.—p. 114.
Some Factors Determining Development of Public Health. O. Davis, Austin.—p. 117.
Medical Inspection of Immigrants with Special Reference to Texas-Mexican Border. J. W. Tappan, El Paso.—p. 120.
Control of Malaria. P. W. Covington, Austin.—p. 124.
Problem of Addict. O Dowling, New Orleans.—p. 126.
Sleeping Sickness. K. H. Beall, Fort Worth.—p. 129.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

June, 1919, 16, Nos. 184-186

*Duodenal Stenosis. E. Cautley.—p. 65.
*Catarrhal Jaundice Associated With Influenza in Children. E. Bronson.—p. 73.
*Influenza in Infants. C. Achard.—p. 78.
Case of Ectopic Urinary Bladder. R. Thompson.—p. 80.
Case of Congenital Urethrocele. F. C. Pybus.—p. 87.
Case of Lipodystrophia Progressiva. F. P. Weber and T. H. Gunewardene.—p. 89.
Case of Myasthenia Gravis. J. Thomson.—p. 92.
Experiences at a Ringworm Clinic. H. Davis.—p. 93.
Retrospect of Otology, 1918. M. Yearsley.—p. 97.

Duodenal Stenosis.—An infant, aged 12 months, had a "convulsion" while nursing, at 10 days of age, but had no subsequent attacks. Breast feeding was continued for five months, with the addition of one bottle daily of milk and water at 4 months of age. He was then weaned. All his life he had been liable to feverish attacks, temperature from 101 to 104 F., with "green sickness," bringing up mucus and passing it per anum. These attacks had become worse. The stomach was considerably dilated and gastric peristalsis was very marked, a doubtful swelling being felt in the pyloric region. On exploration three days later the pylorus was found widely dilated, hence the obstruction was undoubtedly situated lower down, but the state of the child did not warrant further exploration or gastro-enterostomy. The boy died two weeks later at the age of 13 months. The post-mortem examination showed a stomach dilated and hypertrophied; pylorus widely dilated, admitting the first finger. The first part of the duodenum was dilated into a more or less spherical sac over 2 inches in diameter. The second part, for a distance of 1 inch, was extremely stenosed, merely admitting the passage of a probe; and the duct entered about the middle of the stenosed portion. There were no other abnormalities. The remarkable feature of the case was the prolonged duration of life with such an extreme degree of stenosis. There was no history of any attack of tetany in this case.

Catarrhal Jaundice with Influenza.—Bronson cites twelve cases of acute catarrhal jaundice in children who had been exposed to influenza but who had not had the disease in its usual form. In two other children and one adult jaundice followed a typical attack of influenza.

Influenza in Infants.—Achard claims that influenza in the infant is by no means exceptional. The forms of the disease may differ and the gravity vary. The infant does not possess any real immunity, but is merely exposed to contagion from without, the infection being chiefly contracted from the mother. Achard has seen thirty-two cases in children less than 2 years of age cared for at the Neker Hospital.

British Medical Journal, London

July 12, 1919, 2, No. 3054

Disappointments After Gastroenterostomy. B. Boyniban.—p. 33.
Influence of Deficiency of Accessory Food Factors on the Intestine. R. McCarrison.—p. 36.
*Investigation of End Result in Blood Transfusion. W. G. Waugh.—p. 39.
Mastoiditis. A. Dighton.—p. 40.
Two Cases of Acute Perforated Gastric Ulcer: Operation: Recovery. E. Huntley.—p. 41.

Investigation of End Results in Blood Transfusion.—Among 124 cases of transfusion of blood done by Waugh, incompatibility has been met with on three occasions. In two of these transfusion was abandoned, no ill effects persisting. The third case occurred in a patient suffering from pyemia. Injury to the donor occurred once, probably the result of the transfusion tube having been reintroduced into the donor's vein after being employed on the recipient. In closing the donor's wound, Waugh makes a point of removing one-half inch of the vein opened in case it may have suffered damage during the proceedings.

July 19, 1919, 2, No. 3055

Symptoms, Causes and Prevention of Anoxemia. The Value of Oxygen In Its Treatment. J. S. Haldane.—p. 65.
War Lessons As Applied To Civil Practice. R. Sanderson.—p. 71.
*Reamputation. A. E. Chisholm.—p. 73.
Case of Accidental Transference of Malaria Parasite in Course of Transfusion. A. S. Gubb.—p. 74.

Reamputation.—Chisholm has found the following points of practical value in reamputating: Avoid a terminal scar. It is rarely necessary, and probably rarely wise, to include muscle in the flaps. A good fibrous pad is formed between the skin with its integuments and the sawn end of bone. Reamputate clear of the disability for which reamputation is being performed, and try to make sure that no further operation will be necessary. In dealing with terminal sequestra a difference must be made between those cases in which there is little or no active sepsis present and those in which sepsis is pronounced. Reamputation should not be performed in the presence of a really actively septic wound. If the wound fills up with clot, for example, after a reactionary hemorrhage, it is well to open it right up under a general anesthetic, clear out the clot, resuture and drain in the usual way. Otherwise there will be great risk of a septic state ensuing. If the skin is scanty, and if it is important to preserve the length of the stump with a view to future function and fitting, extension may be applied by means of glue or strapping stretching from the stump to some form of wire splint. In amputation a short distance below the knee it is well to apply a posterior splint before the patient comes out of the anesthetic, for there is a great tendency for the knee to assume the flexed attitude of rest, and, if convalescence be delayed, a certain amount of contracture of the hamstrings, often difficult to overcome, may take place. If sepsis appears in a mild form after operation, fomentations or Carrel's treatment may be applied for a few days. If reamputation has to be performed in the presence of a sinus only very mildly septic, or if the muscles do not look very healthy on section, a flavine pack will be found of value, the wound being left open with a view to delayed primary or secondary suture later; or bipp may be applied, suturing the wound and providing drainage for serous oozing for a few days. In amputation below the knee the anterior edge of the tibia should be bevelled so as to prevent the sharp edge from pressing on the anterior flap. Chisholm's usual routine, before suture of the wound, has been to swab the fresh raw surface with ether, which, besides acting as an antiseptic, tends to encourage bleeding, so that small vessels which might lead to troublesome bleeding later on can be ligated at the time of operation. Ether tends also to show up unhealthy muscle by the fact that it may not react so well to the stimulus. This especially applies to avascularized damaged muscle seen soon after the infliction of the primary wound. The wound is then closed and sutured accurately. A narrow rubber dam is introduced at each end of the wound. These drains are left in for two or three days and then removed, provided no sign of infection has appeared. A thin rubber dam provides very efficient drainage and is preferred by Chisholm to tubing in most cases.

Journal of Tropical Medicine and Hygiene, London

July 15, 1919, 22, No. 14

*Bilharziasis Treated by Intravenous Injection of Antimony Tartrate. J. B. Christopherson and J. R. Newlove.—p. 129.

Bilharziasis Treated by Intravenous Injection of Antimony Tartrate.—The authors are convinced that this treatment is specific and that it is a means of eradicating bilharzia from Egypt and the Sudan and from other places. They recite their experience in a considerable number of cases.

Lancet, London

July 26, 1919, 2, No. 5004

*Initiation of Wound Shock and Its Relation to Surgical Shock. E. M. Cowell.—p. 137.
*Jaundice Among British Troops in Northern Italy. H. H. Tooth.—p. 144.
*Effects of Artificial Pneumothorax. S. V. Pearson.—p. 148.

*Outbreaks of Cerebrospinal Fever in Relation to Atmospheric Humidity: Influence of Humidity of Overcrowding. A. Compton.—p. 151.
Malaria from Surgeon's Standpoint. M. White.—p. 154.
*Case of Multiple Epulides. W. W. James.—p. 156.

Initiation of Wound Shock and Its Relation to Surgical Shock.—A number of points in connection with shock are emphasized by Cowell, such as the psychic aspect of the case and the loss of circulating fluid and body heat. He agrees with other observers that during operation in such cases, or where the anatomic interference contemplated is at all extensive, the surgeon should insist on gas and oxygen anesthesia either alone or combined with regional anesthesia. During the operation a falling pressure may be counteracted by giving from 500 to 1,000 c.c. of a 6 per cent. gum solution in physiologic solution of sodium chlorid. There is no evidence of any permanent benefit following the injection of any of the numerous drugs recommended from time to time.

Jaundice Among British Troops in Italy.—The observation made by Tooth and Pringle suggest that jaundice may occur as a complication of influenza.

Effects of Artificial Pneumothorax.—Pearson's report is based on the experience gained from twenty-one patients with severe pulmonary tuberculosis whose pneumothorax he induced artificially, except in one case. The exception developed a spontaneous hydropneumothorax which Pearson converted into a controlled pneumothorax. Eleven of the twenty-one persons are alive, and all except two of these are enjoying good health and following their usual vocation. Nearly all of the ten who died had their symptoms much alleviated and their lives materially prolonged, in several instances by years, during which they enjoyed fairly good health and followed their occupations. The restoration to health and activity of most of the eleven is said to be wonderfully complete.

Cerebrospinal Fever and Atmospheric Humidity.—The studies of cerebrospinal meningitis in Egypt made by Compton add little that is new to our knowledge of the disease and its prevention, but, they afford a striking confirmation of the hypothesis previously advanced associating these outbreaks with a high degree of atmospheric humidity when the meningococcus is about. A "carrier rate" of only 1 per cent. among "noncontacts" taken at random in the Alexandria District (Egypt), and constituting therefore a fairly good "sample," as against a rate ten or even twenty times as high in England under similar circumstances, i. e., working with the same medium and technic, suggests an explanation of the comparative immunity of Egypt from the disease. With the meningococcus so little about, atmospheric humidity in Egypt gets little chance to precipitate outbreaks. Compton indicated by ventilation studies, based on the hygrometric state of the atmosphere met with indoors in occupied quarters during sleeping hours, how the greatest attention requires to be paid to ventilation as a corrective of overcrowding, in view of keeping the indoor humidity as low as possible, considering the part attributed by him to atmospheric humidity in the etiology of cerebrospinal fever.

Multiple Epulides.—In James' case every tooth of the temporary and permanent set which had erupted had associated with it an epulis. The patient was 11 years of age, and not a mouth breather. Very radical surgical intervention, with extraction of the teeth, controlled the condition.

Bulletin de l'Académie de Médecine, Paris

June 24, 1919, **81**, No. 25

Smallpox at Paris during the War. R. Wurtz.—p. 833. See Paris Letter.—p. 350.
*The Centenarians of Califgrnia. O. Laurent.—p. 835.
*Sun Bath Schools. P. F. Armand-Delille.—p. 840.
*Races of Pneumococci. M. Nicolle and E. Debains.—p. 843.
*Serofibrinous Pleurisy. P. Emile-Weil.—p. 846.

Centenarians.—Laurent remarks that the alleged exceptional longevity in Bulgaria, the land of yoghurt, seems to be a question of chemistry, but the exceptional number of centenarians in California seems to be due to the natural causes of the climate, that is, the generally moderate and constant temperature, the fertility of the soil ensuring wholesome food, and the purity of the air as the state may be said to have no manufactures while the ocean, the mountains and the vegetation are constantly purifying the air. Children live out of doors more than elsewhere, and 300 centenarians are recorded to a population of over three millions. He adds that the California centenarians are distinguished by their mental and physical vigor. Laurent describes in particular Captain Diamond whose certified record shows that he was over 118 years old at his recent death, and quotes from his book "Secret of a Longer Life and More Pleasure in Living It." Laurent adds that the more we can study the facts relating to longevity the nearer we come to the problem of life in general, and especially of what he calls infra-life, such as, for instance, the beating of a turtle's heart that is being perfused but is shut off from the vital processes otherwise. [Laurent went to California to study the centenarians and their environment.]

Heliotherapy School.—Last year Armand-Delille organized a sun bath school, like Rollier's at Leysin, for the children of repatriated tuberculous women. The school was in a hilly region in Savoie, and every pleasant day forty or fifty children, dressed only in trunks, held school out of doors. They returned to the school building for lunch, and on rainy days the children were dressed and stayed under a shelter. The classes alternated with games and gymnastic exercises, and the children were thus engaged from 8 till 4:30. By the end of a month the favorable influence was evident, and by the end of three or four months the physical transformation was complete, the suspicious glands could no longer be felt. Similar results were obtained at the Sylvabelle station (Var) with 125 repatriate children who took sun baths without clothing and all winter long. These experiences were on a scale large enough to fully confirm the necessity for heliotherapy as an integral element in outdoor schools. He does not hesitate even to declare that a course of preventive heliotherapy should form part of the hygiene for every child. It can be easily arranged on this principle of the sunlight school. Of course medical supervision is necessary, particularly as a course of sun baths may be dangerous with pulmonary tuberculosis on account of the congestive reactions which it may induce. With this reserve, preventive heliotherapy is a powerful means for fortifying the organism, and is especially effectual in treatment of localized tuberculous lesions in glands.

Different Races of Pneumococci.—Nicolle and Debains reiterate that the agglutinating power of bacteria is the criterion of the race; the power of fixation of complement, on the other hand, is the criterion for the species. There may be other antigens, but those responsible for agglutination and fixation predominate. They are not peculiar to any one bacterium: Of eighty-three specimens of streptococcus tested, eighty-two agglutinated the pneumococcus I and II, and one the pneumococcus I; the cholera vibrio agglutinated both strains, while the pneumococcus II was agglutinated by meningococci, staphylococci, typhoid and dysentery bacilli, and slight agglutination for pneumococcus III was evident with some streptococci. They found further in negroes a pneumococcus IV, "such as the Americans list as purely negative," which in 8 per cent. showed average agglutination, but in 40 per cent. it displayed extremely pronounced agglutinating powers, hyperagglutinability.

Induced Pneumoserosa in Treatment of Serofibrinous Pleurisy.—Weil has now a record of fifty cases of serofibrinous pleurisy in which he injected air, after evacuating the effusion, until the pressure was the same as before. This ensured healing without sequelae in 82 per cent. of the cases, and the failures were in cases with pre-existing adhesions or tuberculous lesions in adjoining organs. A complete success therefore can be realized only when the diaphragm is free, but in one case the diaphragm finally regained its full play after a year of treatment, with ten interventions. In 34 per cent., healing was complete in two or three months; in a few in less than a month. In a parallel series of 86 cases simply punctured, without attempting to induce the

pneumosétreuse, only 16 per cent. healed without disturbing sequelae. Of course tuberculous processes elsewhere interfere with complete healing.

Journal de Médecine de Bordeaux

January 25, 1919, 90, No. 2

Pulmonary Complications of Influenza. R. Damade.—p. 27.
*Resection of Stiff Joint in Finger. H. Lefèvre.—p. 35.

Resection of Stiff Joint in Finger.—The ankylosis in the three cases was the result of a war wound of the finger, with suppuration. Complete recovery of the use of the finger followed resection of redundant tissue and reconstruction of approximately normal conditions in the joint.

March 25, 1919, 90, No. 6

*Neutral Solution of Chlorinated Soda in Treatment of Puerperal Vaginal Infections. J. Andérodias.—p. 107.
*Poisoning from Castor Oil Seeds. A. Baudrimont.—p. 108.
Iodin in Treatment of Influenza. L. Boudreau.—p. 110.

Chlorin Treatment of Puerperal Vaginal Infection.—Andérodias applied Dakin's method of irrigation with neutral solution of chlorinated soda in a case of puerperal vulvovaginal thrombosis with gangrene. The outcome was favorable.

Poisoning with Castor Oil Seeds.—Baudrimont was called to a man and his wife who had taken castor oil seeds, the man eating twenty-four and the woman twelve. They ate them like nuts, and an hour later both were seized with severe vomiting and diarrhea, entailing great suffering and exhaustion, the woman screaming with cramps late into the next day, the respiration irregular and panting. Both were free from all disturbances by the fourth day, except the exhaustion. Llaguet tells of a case in which a child died after picking and eating a single seed. A number of authorities are cited by Baudrimont to confirm the danger from the toxic element in the outer covering of the seed.

Paris Médical

June 28, 1919, 9, No. 26

*The Diet with Diarrhea or Constipation. J. C. Roux.—p. 501.
*Physical Training of Youth. Boigey.—p. 505.
*Drug Cystitis in Typhoid. H. Roger.—p. 508.

The Diet with Diarrhea and with Constipation.—Roux reviews the diet which should be advised with acute and chronic diarrhea, with chronic diarrhea from fermentations, and with constipation, simple or with enteritis or fermentations. Analysis of his recommendations shows that, in all, the aim in the diet proposed is to modify and regulate the development of the intestinal flora. The normal digestive functions seem to require the symbiosis of certain bacteria. But we can regulate the type and the intensity of fermentations and putrefaction, and in this way make the bacteria work our will for us. As the inflamed bowel mucosa exudes an albuminous fluid, the putrefaction bacilli are favored by this, and hence restriction to water is the best way to combat diarrhea as this deprives the bacteria of this culture medium. The water should be boiled and the mouth rinsed thoroughly and often. Rice water supplies a little nourishment. A liter or a liter and a half of water at least should be given in the twenty-four hours to ward off damage from loss of fluids with acute diarrhea. The aim in feeding should be to supply carbohydrates, sugar and starch. The starch favors proliferation of acid-producing bacteria. Breakfast should be tea or cocoa with dry toast or gruel; at 10, rice water; at noon a thick gruel or *bouillon de légumes* freshly prepared, with thoroughly cooked rice or potatoes and jam, with dry toast or zwieback; at 4, cocoa made with water. At 6 the same meal as at noon. Kefir or yoghurt can soon be added, and a pudding at dinner or supper, made with milk. Later, purées of vegetables and, finally, some meat. Any excess of fats should be strictly avoided and only fresh butter used. This diet can be kept up a long while and is useful also in chronic diarrhea.

He says that with dysentery the frequent stools are only mucus and pus from the lower bowel. The patient in reality is constipated, and a milk diet, preferably with kefir, is indicated. Improvement is manifested by the appearance of diarrheic stools, and then the above menu can be followed, as also with chronic diarrhea of the putrefaction type with putrid, dark colored stools. With chronic diarrhea of the fermentation type, the stools are light colored, and the reaction is acid. Carbohydrates must be avoided, and the use of legumes, potatoes and wheat restricted. Breakfast can consist of tea, cocoa made with water, dry toast, stewed fruit and butter. At noon, fish or meat, with rice or macaroni, cheese or pudding, stewed fruits and dry cakes. At 4 repeat the breakfast; at supper repeat the dinner. Potatoes and legumes can finally be cautiously resumed. In certain rare cases, the patients exhausted by the frequent stools, it may be necessary to restrict to water alone for a time and then give only raw meat and eggs, not allowing starchy foods until the stools have become putrid and alkaline. With children it may be best to restrict them to kefir and raw meat for a time, giving daily from 10 to 20 gm. of raw meat, to a total of 40 or 50 gm. Of course secondary diarrheas call for removal of the primary cause first.

With simple constipation he plans a dish rich in starch and fat to alternate with a cellulose dish; fruit four times a day. If there is not much toxic action, meat could be allowed at one meal. A little milk can also be taken, and three spoonfuls of bran a day may likewise prove useful. If there is much toxic action, large doses of lactose transform to acid the reaction of the cecum contents, as the *Bacillus acidophilus* gets a chance to flourish. When there is enteritis with the constipation, all the fruits and vegetables should be cooked. If there is much pain, the legumes should be dropped and the cooked fruit should be passed through a strainer. Agar will have to take the place of the laxative action of fresh vegetables. With constipation of the fermentation type, with much flatulence, all leguminous and raw vegetables must be dropped, and cooked fruits must be freshly prepared; cooked fruit standing for more than twenty-four hours is a culture medium for molds. Meat and cheese can supplement this ration, and paraffin oil gives the laxative effect. The distention from gases may kink the bowel at some point, and this should be combated.

Physical Training.—Boigey describes the special method followed at the Joinville School and the fine results obtained. Careful distinction is made, he says, between the "prepubertary," "postpubertary" and athletic exercises.

Bladder Disturbances During Hexamethylenamin Treatment of Typhoid.—Roger describes in detail a moderate case of typhoid in a man of 33 who was given hexamethylenamin by the mouth in doses of from 1.5 up to 4 and 6 gm. It did not ward off a very serious relapse, and it caused symptoms of actual cystitis. He had never had any bladder trouble before. Roger compares this painful and annoying disturbance from the medication to similar experiences on record, including Fullerton's case of medicinal cystitis in THE JOURNAL, Jan. 13, 1912, p. 78.

Presse Médicale, Paris

July 3, 1919, 27, No. 37

*Pernicious Anemia with Jaundice. Chauffard and Bernard.—p. 361.
*Cancer of Colon. E. Desmarest.—p. 363.
*The Residue with Gastric Digestion. Léon-Meunier.—p. 364.
*The Vertigo that Restores the Hearing. P. Sollier.—p. 366.

Pernicious Anemia with Jaundice.—A previously healthy man of 51 developed pernicious anemia with jaundice, then preleukemic myelemia and finally subacute and terminal myeloid leukemia. The jaundice was not accompanied by retention of bile. In three wecks the reds dropped from 1,630,000 to 760,000, but the hemoglobin kept at 50 per cent. throughout. At the same time, the whites ran up from 2,500 to 331,000 and at last the myelocytes formed 97 per cent. The curves of reds and whites thus crossed each other.

Cancer of the Colon.—Desmarest has removed a cancer of the left colon in two cases by a left transverse supra-umbilical incision which afforded unusually ample access to the splenic angle of the colon and also to the left portion of the transverse colon and the entire descending colon. A cushion under the thorax throws the whole region into prominence, and section of the phrenocolic ligament permits easy and com-

plete mobilization of the transverse-descending angle of the colon. If the bowel is completely obstructed, the feces should be diverted through an ample incision in the cecum, suturing the mucosa to the skin.

Residues of Gastric Digestion.—Meunier has long been convinced that the usual test-meal findings do not mirror the true condition in the stomach because the gastric secretion may be more or less active without being pathologic, and because the principal function of the stomach is not secretory but motor. With abnormal conditions, four hours after a meal the stomach may still contain some of the meal, or it may all have been evacuated but the empty stomach continues secreting gastric juice. The only way to ascertain these conditions with precision is to introduce the stomach tube and have the subject lie prone, absolutely horizontal, thus utilizing the force of gravitation, instead of the usual method with the patient seated, and thus having to combat the force of gravitation. He has abandoned completely the usual test meal, and merely tells the patient to take a few stewed prunes after his last meal. The next day he eats nothing but 300 gm. of soft mashed potato, and four hours later he drinks 100 c.c. of distilled water containing 10 gm. of sugar. Then he lies prone, turning from side to side to mix the contents of the stomach, after which he sits up and the tube is introduced, and then he lies prone again. The fluid which runs out through the tube is tested for sugar, the dilution of the titrated sugar solution showing the volume of the fluid in the stomach at the time. Meunier asserts that when the residue consists merely of gastric secretion, medical measures only are called for, but residues of food, scraps of the prunes, denote some progressive trouble that calls for surgical intervention. With this method of exploration of the stomach, these surgical affections can be detected at an earlier stage than is otherwise possible, and the prospects of surgical intervention are correspondingly brighter.

Vertigo that Cures Deafness.—Sollier refers to Lermoyez' article (summarized recently, March 1, 1919, p. 685), that described certain cases of progressive deafness and malaise in which an attack of sudden vertigo is followed by restoration of the hearing. He ascribed it to a local spasm of the vessels in the internal ear, the relaxing of the spasm causing the dizziness. Sollier intentionally induces dizziness to break up the spasms or other cause of the deafness, and has been able by this means to restore the hearing in some cases of hysteric deafness, as he describes in detail. The dizziness is induced by plugging both ears deep with the forefingers and pressing repeatedly on the tragus. This induces intense dizziness so that the subject falls if the fingers are drawn suddenly out of the ears. The same effect can be realized by sending a faradic current through the skull at the tragus level. Hysteric deafness after aerial shock may be due to vascular spasm, but it is accompanied by anesthesia of the ear. The latter disappears as the hearing returns. The sudden disappearance of the deafness in these hysteric cases suggests that it is due to vascular spasm, as in Lermoyez' gouty patients, and thus hysteria cannot be regarded as exclusively of psychic origin. His research confirms the physiologic conception of hysteria.

July 7, 1919, 27, No. 38

*Unheated Serum in Diagnosis of Syphilis. Rubinstein.—p. 373.
*Improved Crusher Clamp. T. de Martel.—p. 374.
Traumatic Aerocele of the Brain. A. Barbé and R. Glénard.—p. 376.

Unheated Serum in Diagnosis of Syphilis.—Rubinstein points out some sources of error in the Hecht method for seriodiagnosis with unheated serum. He insists that parallel tests with heated and unheated serum are indispensable.

Improved Clamp.—De Martel's crusher is formed of two blades jointed at the outer end like a closed razor. They have a slight outward curve, and the clamping is done with another instrument which locks the ends of the clamp blades together. His description is illustrated, and the advantages of this simple crushing clamp are lauded as he compares it with Mayo's and Doyen's cumbersome clamps with handles and uneven crushing of the tissues, the pressure growing less toward the tip. His clamp ensures even pressure throughout, and facilitates suture.

Progrès Médical, Paris

June 7, 1919, 34, No. 23

*Carbon Dioxid Snow in Dermatoses. L. Lortat-Jacob and G. Vitry. p. 219.
Abscess in Lung after Gassing. A. Clerc, L. Ramond and H. Guillaume.—p. 222.
*Hemolytic Jaundice. M. Loeper.—p. 223.
*Spa Treatment of Nephritis. J. Cottet.—p. 225.

Carbon Dioxid Snow in Dermatoses.—Lortat-Jacob's improved method of applying carbon dioxid snow was mentioned recently in these columns, August 9, page 456. He here reports with a few illustrations the complete cure in four out of five cases of old ulcerating epithelioma of the face; four of four cases of lupus; a case of old rebellious nodular folliculitis with hypertrophy; five of five cases of keloid, including one of painful keloid, and other cases to a total of thirty-five. The results were so good that he does not wait for further experience to commend this method of treating dermatoses.

Hemolytic Jaundice.—The spleen was much enlarged in Loeper's case and the anemia was pronounced, while the red corpuscles swung periodically from 800,000 to 1,500,000 and back again, unmodified by any treatment. The hemolytic jaundice in this case presented characteristics of both the congenital and the acquired types, and the cyclic course suggests a parasitic origin. This assumption is confirmed by the benefit from arsenic in the form of arsphenamin given by the rectum. Inoculation of guinea-pigs with blood and urine gave negative results.

Mineral Waters in Treatment of Nephritis.—Cottet discusses the indications for different mineral waters when it is a question of modifying the diathesis or other disorder to which the kidney disease is secondary; also the indications when it is desired to act directly on the kidney or to ward off the evil effects of the deficient elimination of waste through the kidneys.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 21, 1919, 49, No. 25

*Traumatic Hernia. D. Pometta.—p. 905.
*Biology of Bothriocephalus. C. Janicki.—p. 915.
*Cesarean Section. A. Fonio.—p. 919.
*Volume of Blood Corpuscles. A. Alder.—p. 925.

Traumatic Hernia.—Pometta discusses hernia from the standpoint of industrial accident insurance.

Biology of the Bothriocephalus.—Janicki reports experimental research with the ligula species of bothriocephalus. The adult worm is a parasite in the intestines of water birds that eat fish, but the larvae live and grow to maturity in the fish, possibly taking two years for this, and the fish dies if the worm is not expelled. This extreme development in the first host he regards as a remarkable instance of complex adaptation of the parasite to its successive hosts.

Extraperitoneal Incision with Transperitoneal Cesarean Section.—Fonio describes a method of cesarean section that he has applied in eleven cases in which infection seemed almost certain. The intervention proved a complete success in all, with no infection of the peritoneum. He packs the vagina with iodoform gauze to push the cervix up as high as possible. The abdomen is incised between the symphysis and the umbilicus, and moist sponges are packed between the abdominal wall and the uterus, shutting off the peritoneal cavity, all under local anesthesia. Then a general anesthetic is given, and the uterus wall is incised. After delivery of child and placenta, the gaping wound in the uterus is drawn up out of the abdomen and its cavity rinsed and dried and the incision is sutured in tiers. Then the parietal peritoneum is drawn up and sutured tight around the wound, about 0.5 or 1 cm. from it, thus leaving the incision outside of the peritoneum. Four or five small glass drains are left in contact with the uterus wound, as a bloody serous fluid is squeezed out. By this means any infection of the uterus wound gets no chance to spread to the peritoneum. He refrains from tamponing the uterus in clean cases as this would prevent the free escape of secretions, but in dubious

cases medicated tampons aid in checking infection. With ergot and a preparation of blood platelets, we can control hemorrhage readily without necessity for tamponing. In clean cases he sutures with silk. In future he intends in dubious cases to use catgut for the mucosa and muscle, and silk for the outer tiers. In none of the thirteen cases described in detail was there any sign of infection of the peritoneum with this extraperitoneal technic for the transperitoneal uterus incision.

Volume of Blood Corpuscles.—Alder describes some sources of error in the usual methods for estimating the volume of the blood corpuscles, and means to avoid them.

Annali d'Igiene, Rome

April, 1919, **29**, No. 4

Influenza in Italian Navy. F. Rho.—p. 193.
*Morphology of Diphtheria Bacillus. M. Pergola.—p. 196.
Infectious Properties of Influenza Sputum. G. Volpino.—p. 211.
Deficiency Diseases. I. A. Scala.—p. 215. Cont'n.
The Eight-Hour Day. L. Verney.—p. 231.

Morphology of the Diphtheria Bacillus.—Pergola's research seems to indicate that the longer and slenderer form of the diphtheria bacillus is encountered only when conditions are particularly favorable for its growth. This explains why this type is associated with the severer forms of diphtheria. He discusses the preferable staining technic, and adds that the best means to keep the diphtheria and other bacteria alive and in good condition is by cultivating them in ordinary agar to which bouillon is successively added.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 1, 1919, **40**, No. 44

Typhoid and Dysentery in 1918 Epidemic. F. Ubertis.—p. 434.

June 19, 1919, **40**, No. 49

*Huge Femoral Hernia. E. Cartolari.—p. 498.

Huge Femoral Hernia.—The hernia had repeatedly recurred after operative treatment, and when Cartolari operated on the woman of 48 the hernia extended to 20 cm. below the knee, spreading out in the lower part to a width of 50 cm. The operation took almost two hours, the reduction of the viscera being done very cautiously. Part of the abdominal wall had to be entirely reconstructed. He used for this four flaps from the hernial sac, arranging them one above the other, and reenforcing the whole with a flap from the fascia lata, twisted around and sutured over the whole, with an additional flap from the muscle superposed. While convalescing in bed, a hernia developed on the other side, requiring a Bassini herniotomy. The woman has worn an abdominal band during the ten months since, as Cartolari does not dare to trust too much to the weakened abdominal tissues. The case is illustrated.

Policlinico, Rome

May 25, 1919, **26**, No. 21

*Induced Pneumoperitoneum. P. Alessandrini.—p. 641.
*Earning Capacity After Trauma of the Head. E. Fossataro.—p. 644.
Injury from Common Drugs. A. Filippini.—p. 651.
Da Vinci on the Organs of Sense. G. Bilancioni.—p. 656.

Induced Pneumoperitoneum for Radiologic Work.—Alessandrini comments on the successful introduction of oxygen or air into the peritoneal cavity, to throw the organs into relief for roentgen examination, as he has applied it in forty cases. He used an ordinary pneumothorax needle, the point made a little blunter, and his experiments on the cadaver confirmed the harmlessness of this technic. He had the patient recline, while Goetze preferred the semiseated position in his ninety cases. In the reclining position, the abdominal walls are more relaxed and the patient is more tranquil. The needle is pushed through the rectus muscle and transverse fascia, above the umbilicus, below the liver dulness. As soon as the fascia has been traversed, he injects a little oxygen and watches the manometer to see if the tip is in the peritoneal cavity. The manometer shows the respiratory fluctuations if the tip is in the cavity, and the liver dulness disappears; the palpating hand also feels as if it were suddenly arrested as it touches the viscera, especially the cecum, after a little oxygen has been introduced. The only mishaps encountered were that in one case the needle proved to be clogged, and in another the adhesions from chronic fibrous peritonitis had nearly obliterated the cavity.

The pressure and the amount of the oxygen must be recorded; the quantity ranged from 500 c.c. to 3 liters in his cases. It was extracted afterward in one case of large tumor as it caused dyspnea, but otherwise the gas was left to be absorbed. No effect on pulse, respiration or temperature was observed, not even with much meteorism. His experience teaches that the pressure should never be allowed to surpass that found at the beginning; this can be realized by introduring the gas slowly, as the pressure adapts itself unless large amounts are introduced too hastily. The oxygen rises, and hence the patient must assume different positions for the roentgen examinations to show up the different viscera, various modifications of the erect, horizontal and the knee-chest positions. His findings with this method of pneumoperitoneum were most instructive, and the technic worked out seems to be practical and harmless. The contrast meal throws no light on anything outside of the digestive tract, but oxygen exaggerates the contrasts with all the viscera.

Earning Capacity After Trauma of the Head.—Fossataro gives the clinical history of seventeen patients followed for nine up to fourteen years after an accident injuring the head. The outcome differed so widely in the various cases that it is impossible to foretell what the result will be after such accidents. Some had their earning capacity reduced by 50 per cent., others only by 15 or 20 per cent., although the trauma seemed graver in some in this latter group. Injury of the occipital region seemed more serious, even when there was no fracture. One man died from the effects of the trauma, fourteen years later, although he had shown great improvement during the last few months. The seventeen cases are described in detail, and Fossataro reiterates the necessity for being extremely guarded in pronouncing the prognosis after injury of the head.

June 29, 1919, **26**, No. 26

*Operative Treatment of Causalgia. R. Mosti.—p. 809.
Present Status of Treatment of Exophthalmic Goiter. G. Dragotti.—p. 812.
Health Insurance in Different Countries. L. Verney.—p. 817.

Causalgia.—Mosti reports a case of extremely severe causalgia in which the projectile seemed to have injured merely the artery alone. Resection of the segment of the artery involved, with its corresponding sheath, cured the agonizing pain at one stroke. This does not harmonize with the prevailing conception that causalgia is due to an ascending neuritis of a trunk nerve, or neuritis of the peripheral sympathetic. In his case the humeral artery was completely obstructed by thrombosis, and the lesion involved the artery alone. There was no injury of the nerve, but the sheath of the artery was involved in the lesion. The case suggests that injury of an artery may be the primal cause of causalgia. Even when the sheath alone seems injured, the artery may have suffered. Tenani insists on removing a segment of the sheath of both artery and vein in this "peripheral sympathectomy" as Leriche calls it. Bobbio recently reported eight cases of causalgia cured by "electrolytic decortication" of the nerve according to Negro's technic. The causalgia involved the sciatic in three cases, the median or the ulnar in two and in three both these nerves. In some of his cases the artery had been injured as well as the nerve. He also is convinced that the intervention should include the sheath of both vein and artery, but simple excision of the sheath of the artery has seemed to answer all purposes since Leriche introduced this "peripheral sympathectomy" in 1916.

Riforma Medica, Naples

June 21, 1919, **35**, No. 25

*Echinococcus Disease of the Lung. A. Fagiuoli.—p. 498.
*Reflex Contracture and Paralysis. C. Chavigny.—p. 502; Id. P. Boveri.—p. 502.
Present Status of Sporotrichosis Arthritis. G. Molinari.—p. 504.

Primary Echinococcus Disease of the Lung.—Fagiuoli emphasizes that in the case described there was nothing to

distinguish the true nature of the process until radioscopy cleared up the diagnosis at once, showing the round cysts in the lung. The seroreaction was not positive and there was no eosinophilia until after exploratory puncture. Soon after the latter there were violent paroxyms of coughing, with blood-streaked expectoration, fever and rapid pulse, but the third day order was restored.

Reflex Paralysis and Contracture.—Chavigny reiterates that even long established hysteric paralysis and contracture may yield finally to the proper measures, as in a case of contracted hand described in which the *main figée* of four years' standing relaxed at once as the fingers were passively exercised under the faradic current. Boveri relates that in many cases sent to his service labeled reflex paralysis or reflex contracture, some lesion in the joint or tendon was finally discovered. An excrescence on the bone or a foreign body may finally reveal an organic cause for what is assumed to be a purely functional or factitious disorder.

Archivos Brasileiros de Medicina, Rio de Janeiro

February, 1919, **9**, No. 2

*Sexuality and Psychoneuroses. A. Austregesilo.—p. 85.
*Treatment of Vagotony and Sympatheticotony. H. Noronha.—p. 92.
*Improved Ureosecretory Constant. J. M. da Fonseca.—p. 100.

Sexuality and Psychoneuroses.—Austregesilo declares that his long years of experience as neurologist and psychiatrist have convinced him that sexuality is an important factor in most if not all cases of psychoses. In every form of dementia, toxic psychoses, psychoneuroses, imbecility and idiocy he has detected anomalies in the genital sphere in almost every case, if not in all. Erotic elements are evident in the delirious ideas. The history of mankind, he says, is a record of war and religious mysticism, and both of these are expressions of the sexual instinct, the manifestation of the strength of the male and of the self-sacrificing devotion of unselfish love. The problem of sexuality has been studied by poets, novelists and artists of all ages, but scientists have been very timid and reserved until Freud's pioneer work. In conclusion, Austregesilo offers the aphorism that those living normal sexual lives do not suffer from their nervous system.

Treatment of Vagotony and Sympatheticotony.—Noronha warns that the main thing in treatment of either condition is to aim to restore tone to the unstable nervous system as a whole; atropin can then be given for vagotony and epinephrin for sympatheticotony, but the doses should be small and cautiously given.

Improved Ureosecretory Constant.—Da Fonseca has modified Ambard's formula, to eliminate certain sources of error. The formula he advocates is based on the azotemia per liter; the actual and the normal amount of urine in the twenty-four hours, and the urea per liter of urine. The subject is prepared for the test the same as for the Ambard formula. The functional capacity of the kidneys is estimated by the proportion between the urea in the blood and in the urine and by the volume of urine secreted. The formula is thus as follows: The constant or coefficient equals the urea percentage in the blood, divided by the urea percentage in the urine, multiplied by the quotient obtained by dividing the actual volume of urine by the normal volume of urine. The standard for the normal amount of urine is calculated for each subject by adding to the weight in kilograms the excess in centimeters of the height above 1 meter. The figure thus obtained is multiplied by 10. For a woman he substracts 10 per cent. from the figure thus obtained. The calculation thus would be for a person weighing 70 kg. and 1.70 meters tall, $70 + 70 \times 10 = 1{,}400$ c.c. For a woman weighing and measuring the same, it would be identical except for substracting 10 per cent. =1,260 c.c. The constant normal coefficient obtained with this new and simple formula ranges from 0.015 to 0.018 and it has proved remarkably instructive when compared with Ambard's constant and the clinical course. The simplicity of the formula is an advantage. When the coefficient runs up to 0.025, 0.050, 0.100, the kidneys are wofully deficient; with 0.200 or 0.250 there is scarcely any functional capacity left. Less than 0.010 also denotes severe kidney insufficiency, such as is observed in nephritis of the dropsy type.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

May, 1919, **2**, No. 5

*Sclerosis of Splanchnic Vessels. S. Martinez Gómez.—p. 257.
*Phlegmon in Ischiorectal Fossa. F. Martinez Suárez.—p. 267.
Cancer of the Pylorus. N. Mendizábal.—p. 279.

Sclerosis of Splanchnic Vessels.—The sclerosis in Gómez' three cases induced attacks like those of angina pectoris in the abdomen. Under repose and medical measures the condition improved, but it grew worse again as active life was resumed. The pain was always in the upper abdomen and never spread to the thorax, neck or arms. It came on almost suddenly, after the principal meal, and was brought on by exercise. It yielded rapidly to repose and did not return at any other time of the day in two of the patients. The third had the pain develop after each meal and also during the night, but it stopped when he stood up. In this case aerophagia evidently cooperated in the clinical picture. Such patients should lead a tranquil life, avoiding excitement and stimulants and overloading the stomach. The heart should be supervised.

Ischiorectal Phlegmon.—Suárez relates that periproctitis and peritonitis followed the ischiorectal phlegmon, with death the eighth day. The patient was a previously healthy man of 56.

Brazil-Medico, Rio de Janeiro

June 7, 1919, **33**, No. 23

*Colorimeter for Measuring Doses of Vaccines. A. M. da Cunha and C. de Miranda.—p. 177.
*Syphilis in Brazil. O. Clark.—p. 177. Com'd in No. 22, p. 169.

Dosage of Vaccines.—Da Cunha and de Miranda determine the strength of a bacterial vaccine by the opacity of the emulsion. They give the formulas to use with the colorimeter for the purpose, as worked out by comparative tests with Sabouraud's weighing method.

Syphilis in Brazil.—Clark relates that de Mendonça obtained a positive Wassermann reaction in 50 per cent. of the thousands of patients that passed through his surgical service at the Hospital de Beneficencia Portugueza during a certain period, but this hospital is for the Portuguese colony and the disease may have been acquired across the sea. Clark tells further of a group of 14 medical students of the best social standing, men who knew the dangers of venereal disease, but recent examination twelve years later shows signs of syphilis in 9, including several with grave visceral lesions. Clark's article was read at the First South American Congress of Dermatology and Syphiligraphy at Rio last fall, and the data he presented confirm the enormous prevalence of syphilis in Brazil. The vital statistics do not show this as the underlying syphilis may have been overlooked or, as in one case he knows of, the man of 30 committed suicide because he had contracted syphilis. He cites examples further of tuberculosis developing in a healed syphilitic cavity in the base of the left lung. He adds that syphilis seems to be even more prevalent in northern Brazil. A large proportion of the heads of families in northern Brazil die at about the age of 40, victims of cardiovascular, nervous or visceral syphilitic lesions. From his three years in the hospitals of Europe and New York and eight years in a Rio hospital, he thinks Brazil far surpasses those other countries in the prevalence of syphilis. General paralysis, which is said to be rare in tropical countries, is becoming more frequent as physicians are growing more skillful in diagnosing it.

Clark adds that there can be no doubt that syphilis in Brazil runs a mild course, as a rule, notwithstanding the inadequate treatment. The proportion of tertiary manifestations is very small in comparison to the total number of syphilitics. The race as a whole is the strongest he knows of, which contradicts the assumption that syphilis is an important factor in the degeneration of a race. He describes the findings in fifty cadavers with grave visceral lesions, supplementing this with the clinical history of 6 cases of syphilitic liver disease, with recovery in some; 2 with acute yellow atrophy of the liver subsiding under treatment, and one case of primary enlargement of the spleen with secon-

dary anemia, negative Wassermann reaction and anamnesis, and the blood picture normal. The spleen measured 35 cm. but returned to normal size under mercury. A few months later a gumma developed in the abdominal wall, and at this time the Wassermann reaction was positive. Later he suffered from intense gastralgia which subsided likewise under mercury. In one young man of 18 the splenomegaly seemed to be traceable to inherited syphilis. It subsided only partially under specific treatment; the liver was enlarged also and there was some ascites. Splenectomy seems the only relief in such cases.

Crónica Médico-Quirúrgica, Havana

May, 1919, **45**, No. 5

Care in Childhood Prolongs Life After Forty. J. S. Fernández.—p. 147.
Herpes of Cornea After Anti-Typhoid Vaccination. F. M. Fernández.—p. 156.
Incompatibility of Quinin and Acetylsalicylic Acid. J. L. Yagüe y Espinosa.—p. 157.

Gaceta Médica de Caracas, Venezuela

May 15, **26**, No. 9

*Secondary Dyspepsia. L. Razetti.—p. 91.
Oxytocic Action of Quinin. R. Medina Jiménez.—p. 96.

Secondary Dyspepsia.—Razetti refers mainly to dyspepsia secondary to appendicitis, describing several typical cases. The patients had been treated and drugged for years until the casual discovery of tenderness at McBurney's point first attracted attention to the appendix. One woman applied to him for an operation on the stomach as she was so weary of taking medicines for her hypochlorhydric dyspepsia of many years' standing. In this case palpation revealed an ovarian cyst. In other cases the McBurney point gave the clue or the tender gallbladder—in all, the removal of the ovary, appendix or gallbladder seemed to cure at one stroke the chronic dyspepsia. All patients with digestive disturbance not explainable by other means should have the appendix examined. If this can be exculpated, all the other pelvic and abdominal organs should be interrogated in turn, remembering that a chronic inflammatory process often develops without any acute warning of its existence. Lobo corroborated his statements, saying that the appendix is undoubtedly responsible for 50 per cent. of the cases of dyspepsia, but Ruiz declared that these speakers overlooked the importance of syphilis as a cause of dyspepsia. From simple hypersecretion to Dieulafoy's exulceration, all forms of dyspepsia may yield to treatment of the underlying syphilis.

Revista Médica de Chile, Santiago

April, 1919, **47**, No. 4

*Typhus in America. R. Kraus.—p. 131.
Hookworm in Coal Mines of Southern Chile. J. Noe.—p. 148.
Case of Cerebral Syphilis. H. L. Plaza.—p. 157.

Typhus in America.—This article has already been briefly mentioned in these columns, when it appeared elsewhere. Kraus emphasizes that neither by cultures nor by microscopic or histologic findings is the differential diagnosis of typhus possible. Even the process of necrosis in the walls of the small arteries, and cellular infiltration around the ramifications, to which E. Fränkel called attention as pathognomonic of typhus, were found in three influenza cases at the Hospital Muñiz at Buenos Aires. Monkeys react with fever to intraperitoneal injection of typhus blood. They are more sensitive than guinea-pigs, but the monkeys of the Americas are less sensitive than those of the Old World. Nicolle has reported that the micrococcus of Malta or undulant fever is agglutinated with typhus serum more effectually than with any disease except Malta fever itself. The serореaction with the *Bacillus proteus* isolated from the urine of typhus patients, especially the strain known as X 19, is said to give a characteristic agglutination in 90 per cent. of cases. An alcoholic preparation gave more responses than the live cultures in Kraus' tests, and the alcoholic preparation is said to keep for two years. Sordelli emulsifies two agar tube slant cultures with 2 c.c. of physiologic saline and adds alcohol to four times the volume, and after setting aside for an hour, he decants the alcohol. The sediment is then emulsified with physiologic saline, the volume equal to that of the alcohol. He then adds 0.5 per cent. phenol, and after waiting twenty-four hours, adds 8 drops to the serum to be tested. The directions with a European preparation are that each 0.5 c.c. of diluted serum calls for 0.1 c.c. (4 drops) of the alcoholic preparation.

Revista Española de Cirugía, Madrid

March, 1919, **1**, No. 3

*Plastic Surgery of the Cheek. R. de Mata.—p. 129.
*Coexistence of Genitoperitoneal Tuberculosis and Uterine Fibromatosis. R. B. de Bengoa.—p. 135.
*Septic Phlebitis. Iñigo.—p. 143.

Surgery of the Cheek for Epithelioma.—De Mata's incision was carried from the ear to the middle of the chin but just below the jaw all the way except at the point of the chin, where it ran up to the lip. The diseased glands in the neck were then excised, and then the incision was carried around the edge of both lips to the median line. This allowed the entire skin of the cheek to be turned back to the orbit and nose. The tissues beneath were then turned back toward the ear, leaving the mucosa lining of the mouth intact except the gap where the epithelioma was cut out. This was repaired with mucosa from the lips, and the severed Steno's duct was reimplanted in the mucosa. The linear scar left is in the shadow of the jaw and is scarcely perceptible, especially as the man has grown a beard since. Healing was prompt and perfect, and the mouth could soon be normally opened.

Fibromatosis of the Uterus Plus Tuberculous Ascites.—De Bengoa lists the case described as *un caso clínico de ginecopatías antagónicas* on account of the coincidence of the tuberculous lesions and ascites with the fibromyomatosis of the internal genital organs and peritoneum. After resection he refrained from draining and applied heliotherapy, with excellent results.

Septic Phlebitis.—Iñigo noted a rise in temperature and acceleration of the pulse as the only signs in certain cases of insidious septic phlebitis. The fever is not high but occurs spasmodically and may be of brief duration, preceded by a slight chill or at least by a feeling of chilliness and malaise, when there may be nothing to suggest inflammation or suppuration in the wound. Necropsy in some cases of this kind cleared up the diagnosis for the first time. One of the typical cases described was that of a woman who had had a large left ovarian cyst removed and seemed to be smoothly convalescing, when she developed periods of malaise with slight chills, slight rise in temperature and pulse of 90 to 120, these brief periods alternating with euphoria. The laparotomy wound healed perfectly, but the patient said she felt as if she had hemorrhoids only they were higher up than they should be. No hemorrhoids could be discovered. The recurring slight and brief fever was ascribed to absorption of cyst contents, as some had been spilled at the laparotomy, and the woman was to have left the hospital at the end of the third week, when she died suddenly the night before Necropsy revealed embolism from septic phlebitis. There had been no edema at any time, no phlegmasia alba dolens, but if the blood had been examined when the woman complained of the "high hemorrhoids," it might have given the clue. At least, it would have shown the necessity for keeping the woman in bed. Septic phlebitis was responsible for 66 per cent. of the mortality with war wounds of the chest, according to Borrows, and in an even larger proportion with wounds in the limbs.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

April, 1919, **27**, No. 4

*Syphilis of Upper Air Passages and Ear. J. A. Pansardi.—p. 109.

Syphilis of Nose, Throat or Ear.—Pansardi reviews the manifestations of syphilis in the nose, mouth and larynx and in the organ of hearing. He discusses the diagnosis and the local and general treatment of each type at different ages and with inherited or acquired syphilis.

Semana Médica, Buenos Aires

May 22, 1919, **26**, No. 21

*Case of Adiposogenital Dystrophy. J. Destéfano.—p. 535.
Proposed Reform of Medical Curriculum. N. V. Greco.—p. 539.
*Hemorrhagic Purpura of Syphilitic Origin. L. U. Rabuffetti.—p. 541.
*Ossifying Myositis. R. A. Rivarola.—p. 544.
Hypospadias. Id.—p. 545.

Adiposogenital Dystrophy.—Destéfano says that the retrospective diagnosis in the man of 50 is that the inadequately treated attack of cerebral syphilis fourteen years before had modified the pituitary body and adjoining sugar center so that symptoms of perverted functioning in each became apparent. Obesity developed, with loss of genital functions, loss of all the hair on body and limbs, except at the pubis and axillae, and the urine finally showed up to 15.94 gm. of sugar. The pituitary body was seen to be smaller than usual, evidently the seat of sclerosis.

Purpura of Syphilitic Origin.—Rabuffetti argues that the syphilitic origin in the case of severe hemorrhagic purpura described is established by the complete cure under treatment for the syphilis alone. The patient was a painter of 27, but calcium chlorid and similar measures for the hemorrhagic purpura and complicating hydrarthroses failed to display the least benefit. Under mercury and arsphenamin, recovery was soon complete. The tolerance for arsphenamin was remarkable. Two or three months later he complained anew of pains in bones and joints at night, and treatment was resumed.

Ossifying Myositis.—The case described by Rivarola has been published before (Centeno, 1915), but the course since has shown the necessity for exceptional hygiene in this disease. The child keeps in good condition in the hospital, but when the parents take the boy home the condition develops acute aggravation. The child presents congenital deformity of the toes, the arrested development here confirming the general assumption of the embryonal origin of the disease. Rivarola adds in conclusion that congenital malformation, arrested development, of fingers or toes should warn of the possibility of the child's being a candidate for ossifying myositis later. The hygiene and development should be supervised with special care in consequence.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

May 10, 1919, **1**, No. 19

*Psychanalysis. J. Borst.—p. 1650.
*Calcium Content of the Blood in Children. S. B. de V. Robles.—p. 1663.
Oil Eczema. L. Heyermans.—p. 1671.
Lethargic Encephalitis or Encephalitic Influenza? S. J. Van Wjjhe.—p. 1673.

Psychanalysis.—This is an address delivered by Borst at a conference of railroad physicians, as he thinks that their special field of practice can derive great benefit from Freud's pioneer work on the origin and cure of neuroses. He describes a number of striking incidents from his own experience, and emphasizes the difference between the results obtained with the older methods of treatment and those now realized by exploring and cleaning out the subconscious elements. Thirty years ago, for instance, he tried to cure a tendency to somnambulism with hypnosis, but the success proved transient and the somnambulism kept up. Now, in such a case, he investigates the circumstances of the first appearance of the tendency to somnambulism. This gives insight into the subconscious, and as this is brought into the light and discussed, a complete and permanent cure is realized. This we owe to Freud, he says, but Borst does not follow him to the extreme of accepting a sexual element in every case. It is this feature of psychanalysis which has attracted lay attention to it in an undesirable degree. In some of the cases Borst describes, the marriage of a sister below her rank, discovery of cheating by an employee, or a severe fright was the cause of the nervous diarrhea, hysteric instability, or attacks of depression, anorexia and nausea. He cured these patients by psychanalysis without seeking any sexual factors. Cases of bladder and rectum neuroses, especially in young girls, often subsided permanently when the practice of masturbation was discovered and combated.

Calcium Content of the Blood in Children.—Robles found that the calcium content in the children examined ranged from N/75 to N/90. It seemed to keep at a constant figure in the same child, when the Wright method for determination of the calcium in the blood was applied. In all such tests the time should be recorded; the findings differ the longer or shorter the time. Half a minute seems the preferable technic. His extensive tests of children with tetany failed to show any difference from normal in the calcium content of the blood.

Hospitalstidende, Copenhagen

June 4, 1919, **62**, No. 23

*Permanently High Blood Pressure. V. Topp.—p. 705.
*Syphilis in Etiology of Appendicitis. H. Boas and O. Wissing.—p. 709.

The Prognosis with Permanently High Blood Pressure.—Topp tabulates the findings at the Finsen Institute in 164 cases of permanently high blood pressure, above 180 mm., between 1913 and 1916. Recent reports in regard to 157 show that 83.5 per cent. have died since. The surviving 16.5 per cent. had a maximal pressure of 180 to 220 and one of 250, including 4 between 40 and 49; 9 between 50 and 59; 8 between 60 and 69, and 5 between 70 and 79. There were 118 men to 39 women; 15.3 per cent. of the men are still living and 20.5 of the women. In over 60 per cent. of the patients, sclerosis of the kidneys was evident, and 84 per cent. of these patients died within two years. The survivors are all persons who are able to reduce physical exertion to the minimum.

Syphilis in Etiology of Appendicitis.—Boas examined sixty-seven appendicitis patients for signs of syphilis, but found nothing to suggest acquired or inherited syphilis in sixty-five of them.

June 11, 1919, **62**, No. 24

*Spirochetes in Paretic Dementia. H. C. Hall.—p. 729.

Spirochetes in Paretic Dementia.—Hall was never able to discover spirochetes in the brain in cases of paretic dementia until he applied Jahnel's technic. With this he showed up the spirochetes readily even when the Levaditi and Noguchi methods gave negative results. Jahnel supplemented the Levaditi technic with a preliminary treatment with uranium nitrate which Cajal recommends with his method for staining glia to avoid the necessity for staining of the nerve fibrils. The uranium nitrate affects the fibrils and the spirochetes in a different manner. In tissue treated for thirty minutes to an hour at 37 C. with a 1 per cent. solution of uranium nitrate, the nerve fibrils become incapable of taking the silver nitrate stain while the spirochetes take this stain well. The whole procedure takes three or four weeks, but the findings seem to be extremely instructive. In the two cases described in detail, the discovery of the spirochetes harmonized with the symptoms noted during life. They seem to occur in a few well defined foci, mainly in the cortex. He adds that certain biologic characteristics of the spirochetes found in paretic dementia seem to indicate that this is a specific type of the syphilitic virus, with a special affinity for the nervous system.

Ugeskrift for Læger, Copenhagen

June 26, 1919, **81**, No. 26

*Influenza in the Pregnant and in Parturients. E. Hauch.—p. 1063.
Circumscribed Edema; Two Cases. H. R. Magnus.—p. 1069.
*Catheterization in Cases of Retention. C. Dethlefsen.—p. 1071.

Influenza in the Pregnant and in Parturients.—Hauch concludes from experiences at the Copenhagen Maternity that labor and delivery are very dangerous in the course of influenza pneumonia, and hence must be deferred with every means in our power. The fetus usually dies in the severer cases, and the death of the fetus renders the prognosis grave. Otherwise the pneumonia has no especial gravity during a pregnancy or in the puerperium.

Catheterization in Cases of Retention.—Dethlefsen connects the catheter with a douche can of warm water and lets the water pour with force through the catheter as the latter is being introduced. This prevents obstruction of the catheter, and facilitates materially the introduction of the catheter, while smoothing out folds in the urethra lining.